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THE SMOKE ABATEMENT HANDBOOK

1st Edition
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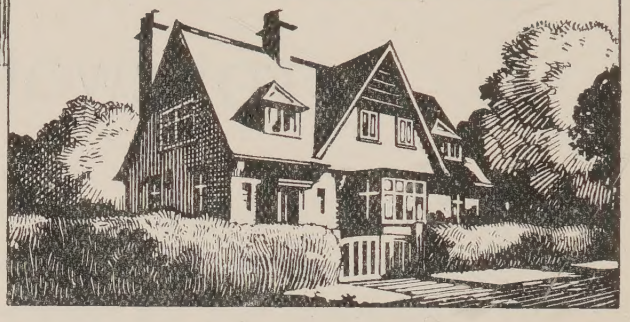
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FOREWORD

THIS Handbook is a modest attempt to set down, concisely and yet as comprehensively as possible, the numerous facts and figures with which the smoke abatement movement and its workers are concerned. It is hoped that it will be useful to all who may have occasion to speak or write on this subject, and that it may even induce others to commence to speak or to write. The Society hopes to issue new editions from time to time, and in order that the next may show a marked improvement over this initial effort, we shall be grateful for suggestions and criticisms. We ask you to make good use, whenever the opportunity occurs, of the information given in the following pages; it is only by sowing a multitude of seeds that we shall at last reap the crop for which we are striving.

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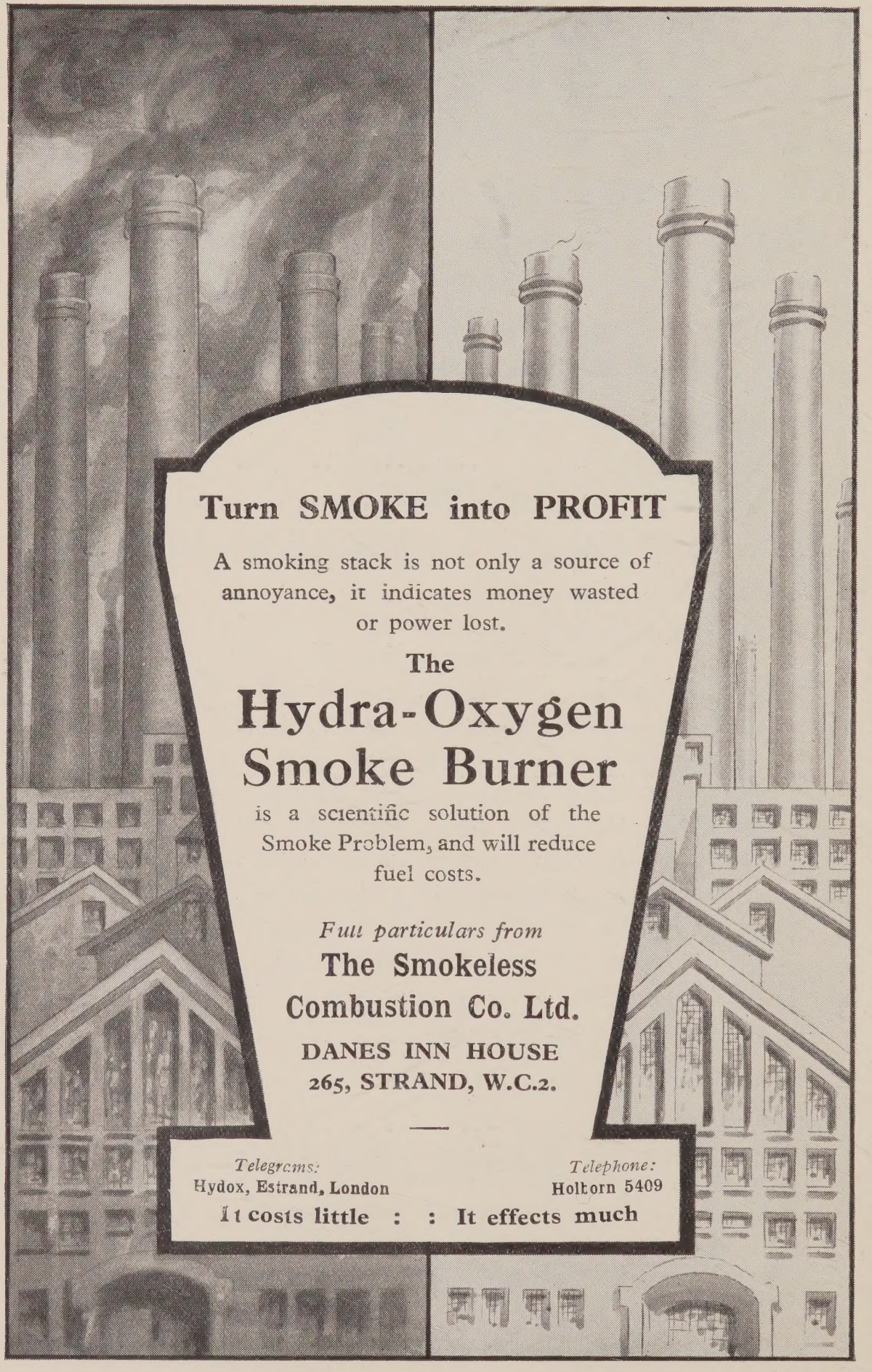
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CONTENTS

	PAGE
Coal	7
The Causes and Nature of Smoke	9
The Quantity of Smoke Produced	11
The Measurement of Atmospheric Pollution	11
Ultra-Violet Radiation and Atmospheric Pollution	13
Smoke and Health	13
The Effects of Smoke upon Buildings	17
Smoke and Vegetation	17
The English Law Relating to the Emission of Smoke	19
The Scottish Law Relating to the Emission of Smoke	21
Industrial Smoke Abatement	21
The Domestic Smoke Nuisance	22
Smokeless Fuels :—	
Anthracite and Steam Coals	25
Electricity	25
Gas	27
Gas Coke	31
Low Temperature Carbonisation	35
Oil	37
The Cost of Smoke	37
The History of Smoke Abatement	39
Principal Books on Smoke Abatement	41
Directory of Associations	42
The National Smoke Abatement Society :—	
Affiliated Local Authorities and Associations Council, Officers, Executive, Etc.	43
General Information concerning the Society	47



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Coal.

As the smoke nuisance in this country is almost entirely a result of the use—or rather misuse—of coal, it is expedient to consider this subject. Coal is of vegetable origin and is a product of the transformation of vast areas of primaeval forests and swamps. The main classes of coal, according to the degree of transformation, are :—

1. Sub-bituminous or Lignitic	Carbon content below 75%
2. Bituminous coals	Carbon content 75-90%
3. Anthracites	Carbon content above 90%

The first class is of little importance to this country, and as the third class is either smokeless or nearly so, it is the widely used bituminous coals which are of the greatest interest from the smoke abatement point of view.

It is estimated that there are 190,000 million tons of coal in Great Britain within 4,000 feet of the surface, of which about 250 million tons are consumed annually (245 millions in 1928). The quantity of coal available for home consumption was 170.8 million tons in 1925, with a consumption per head of population of 78 cwts. The uses to which this coal is put may be analysed as follows :—

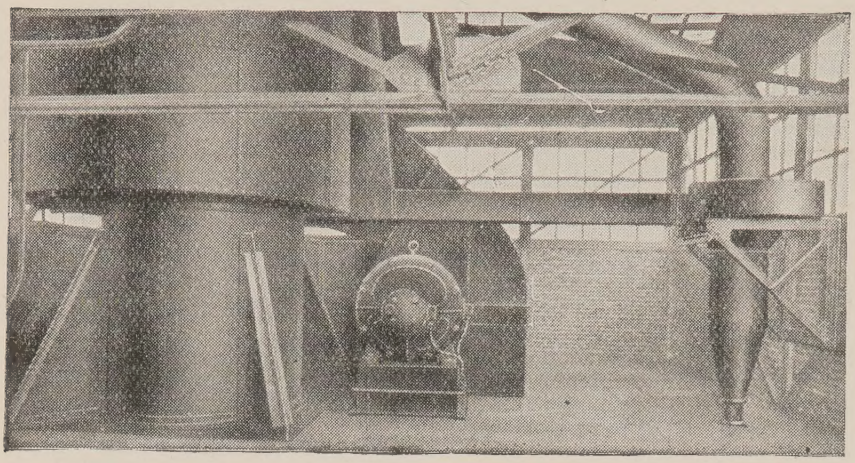
	Percentage of Total.
Domestic	18.7
Gas Works	9.2
Electricity Works	4.3
Railways (Locomotives)..	7.5
Bunkers for coastwise vessels	0.7
Coal Mines	9.2
Miners coal	3.7
Pig iron manufacture	7.8
General manufacture and other purposes	38.9
	100.0

The modes of using coal may also be analysed as follows :—

Raw coal : For Domestic heating and cooking.
For " Commercial " heating.
For Industrial purposes :—
Steam raising : Power Production including Electricity works.
Process works.
Metallurgical and similar processes.

Pretreated Coal :
High Temperature Carbonisation :
Gas works practice.
Coke oven practice.
Low Temperature carbonisation.

Smoke is unavoidable in domestic cooking and heating appliances where raw coal is used. In other cases it is possible to either eliminate it completely or to reduce it to very small proportions.



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The Causes and Nature of Smoke.

Bituminous coal is a heterogeneous substance, but is broadly divisible into two parts—fixed carbon and volatile matter. The proportion of the latter varies from 5% in the case of anthracite to 20% or even up to 40% in different classes of bituminous coal. During carbonisation the volatile matters are kept from contact with air, and are collected to give coal gas, tar, and other products. If the coal is burned in air the volatile matters driven off will inflame if the temperature is higher than their ignition point, and if there is sufficient air present. If these conditions are absent the mixture being evolved from the coal either wholly or partially escapes combustion, and is liberated as smoke. These requisite conditions for complete combustion are impossible to attain in ordinary domestic appliances, and are in any case obtainable only with care. The immediate result of smoke formation is a proportionate loss of heat.

Coal smoke is composed mainly of an intimate mixture of carbon, tarry matters, mineral ash, ammonium salts and acidic substances. The following analyses show the composition of soot formed in a domestic chimney, and in various parts of a boiler chimney.

Analyses of Soot (Cohen and Ruston).

	Coal	Domestic Soot	Soot from Boiler		
			At Base	70 ft. up	Top 110 ft.
Carbon ..	69.30	40.50	16.66	21.80	27.00
Hydrogen ..	4.89	4.37	0.86	1.44	1.68
Nitrogen ..	1.39	4.09	nil	1.18	1.21
Sulphur ..	1.74	2.99	2.07	2.58	2.84
Chlorine ..	0.27	5.19	0.11	1.46	1.60
Tar ..	1.64	25.91	0.09	0.80	1.66
Ash ..	8.48	18.16	75.04	66.04	61.80
Acidity ..	0.00	0.37	1.33	0.58	0.56

Nuisances from Sulphur Fumes.

The sulphur content of coal may vary from less than 1% to 3 or 4%, and a quarter to one third of this is expelled with the gases during combustion in the form of sulphur dioxide, which in the air becomes sulphurous and sulpuhric acids. In small quantities, unaccompanied by the carbonaceous and tarry matter of smoke, dispersal through the atmosphere renders the effects inconsiderable. When, however, combustion takes place on a very large scale, with forced or induced draught and low chimneys, the nuisance from the fumes is greatly increased, even if there is no visible smoke, owing to the emission of very large quantities of gases at a low altitude. Public attention has been directed especially to modern power stations, with a huge coal consumption, creating a nuisance in this way. In one case judgment has been given against a power station which, it is stated, emits 11 tons of sulphur dioxide daily, and which has caused extensive damage over an area of at least a mile radius. Power stations present no unique problems, except as far as size is concerned : the question is mainly one of degree. The erection or proposed erection of such stations, does however, intensify the nuisance, for which a complete solution is urgently desired. Considerable research upon the elimination of both sulphur and grit (a further nuisance) is being carried out ; favourable results have been obtained experimentally, and considerable improvements are being effected.

A Therm in the Furnace is worth two in the Flue



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The Quantity of Smoke Produced.

Domestic Smoke.

Cohen and Ruston, on the basis of earlier determinations, estimate that 6% of the carbon in burnt coal in domestic grates is lost in smoke. This, with an annual consumption of 36 million tons is equivalent to nearly two million tons of carbon. On the average domestic soot contains 60% of carbon, and it is therefore estimated (W. H. Bone) that 3.3 million tons of domestic smoke are produced annually.

Industrial Smoke.

The same authority also estimates that under industrial conditions there is a 1.5% loss of carbon in the burnt coal. With a factory consumption of 100 million tons of coal per annum, and taking 25% as the proportion of carbon in industrial smoke, we obtain a figure of 6 million tons of smoke and soot produced in factory chimneys each year. While the weight of this is almost double the estimated weight of domestic smoke, it must be borne in mind that the latter type contains far more adhesive tarry matter, which renders it far more objectionable.

The Measurement of Atmospheric Pollution.

By Dr. J. R. Ashworth.

For the measurement of atmospheric pollution an apparatus called the Standard Gauge has been designed by the Advisory Committee on Atmospheric Pollution and is in general use. It consists of a large basin of enamelled iron resting on an iron stand and raised about four or five feet above the ground. An aperture in the bottom of the basin is connected to one or more large bottles placed underneath which receive the rainwater and all else which falls into the gauge. Once a month the matter collected in the bottles is separated by filtration into soluble and insoluble matter and may be further analysed into carbonaceous constituents, ash, tar, ammonia, sulphates, and chlorides.

The results are usually expressed in grams per square dekametre (= metric tons per hundred square kilometres) or else in tons per square mile. The latter can be obtained by dividing the former by the factor 39.0.

The gauge described above which is 70 cms. in diameter has recently been modified. The new patterns are 30 ccm. in diameter and are made of stoneware or preferable of glass. They are supplied by the Meteorological Office.

It has been usual to collect the deposited matter once a month. For some investigations a much smaller unit of time is desirable at the sacrifice of details in the analysis of the deposit. An apparatus which has been used with success, has been devised for giving an estimate of what falls from the atmosphere daily and hourly. Briefly it consists of a disc of white filter paper laid horizontally on a tray which revolves, by clockwork, round a vertical axis, and which makes one revolution in 24 hours. The whole is enclosed in a metal box which has an opening in the lid, shaped like a section of a circle, and is in area one-twentyfourth the size of the filter paper. The atmospheric impurities which fall through the opening are deposited on the filter paper, and by counting the deposited particles a record is obtained of atmospheric impurities hour by hour. Types of atmospheric pollution of factory, commercial and suburban areas can be readily distinguished with this apparatus.

Another piece of apparatus, which has for its object the measurement of the amount of impurity in any volume of air, is Owen's Automatic Filter. Here two litres of air are automatically drawn through thick white filter paper every quarter of an hour and the stain left, where the air has passed through the filter paper, is a measure of the pollution of the air. A series of standardized stains has been prepared so that it is easy to estimate the pollution in say, milligrams per cubic metre. Lastly for the instantaneous determination of atmospheric impurity the jet dust-counter may be used. By means of a suction pump a jet of air is made to impinge on a glass microscopic slide, and the particles which are deposited are examined and counted under a high power microscope.

STATION	Rainfall	Grammes per square Dekametre (Metric Tons per Hundred Square Kilometres)								
		Insoluble Matter			Soluble Matter		Total Solids	Included in Soluble Matter		
	mm.	Tar	Carbonaceous Matter	Ash	Loss on Ignition	Ash		Sulphates (SO_3)	Chlorine (Cl)	Ammonia (NH_3)
London (Golden Lane	548	146	3324	4938	2785	4131	15329	1655	1169	238
London (S. Kensington)	482	170	1627	3372	1289	2498	8956	984	720	77
Birmingham (Central) ..	715	153	2150	6869	1763	3953	14888	1719	852	132
Birmingham (Bournville Village)	902	42	889	989	1438	1273	4631	499	302	13
Burnley	1149	224	3222	7401	6500	3485	20831	1235	972	80
Cardiff	1147	78	1500	1960	1204	3800	8542	1026	1241	23
Edinburgh (Princes St.)	649	240	1662	4478	1405	1522	9307	1069	181	73
Glasgow (Blythswood Square)	852	137	2004	4384	2159	2794	11479	1479	529	186
Huddersfield	599	23	1398	2640	5759	4981	14798	3605	1279	733
Leeds (Park Square) ..	736	138	2600	6620	2126	3230	14720	1458	999	85
Leicester (Town Hall) ..	686	167	2432	5717	1717	2322	12356	1069	417	54
Liverpool (Netherfield Road)	849	265	3873	9068	3303	5566	22075	2559	1422	263
Newcastle-upon-Tyne (Westgate Rd.)	731	244	4624	5718	3474	4796	18856	3037	547	86
Salford (Regent Road) ..	1163	723	4236	5091	1532	2922	14505	1578	1425	49
Southport (Hesketh Park)	986	51	734	1126	1111	2377	5399	681	982	8

Table Showing the Annual Deposit at various Centres for the Year ending March 31st, 1930.

The above table illustrates the method of expressing the composition of the deposit and gives the observations of a group of representative stations. For complete tables, showing also the monthly figures, and winter and summer totals, see the Reports of the Investigation of Atmospheric Pollution, published by H.M. Stationery Office.

Ultra-Violet Light and Atmospheric Pollution.

By Dr. J. R. Ashworth.

Professor Leonard Hill, F.R.S., has devised a simple method for comparing from day to day the amount of ultra-violet light which is received on the surface of the earth. A solution of methylene blue in acetone is provided and the observer exposes this in a small quartz tube to the uninterrupted light from the sky and sun. At the end of twenty-four hours the degree of fading of the blue colour is ascertained by comparing the solution in the quartz tube with a set of blue solutions in small glass tubes graded in depth of colour and numbered 10 to 1. By subtracting the shade number corresponding to the faded blue in the quartz tube from 10 the amount of fading is obtained which measures the intensity of the active ultra-violet rays

In using this test for the estimation of the obstruction of light by atmospheric pollution a quartz tube should be exposed on the roof of some building in the town where the pollution of the air is to be measured and another in the clear country outside. By comparing the readings of the tubes the obstruction to the ultra-violet rays by the town atmosphere is readily obtained.

The apparatus, which consists of a quartz tube, standard colour tubes, pipette, case, and bottle of acetone methylene blue, can be had from Messrs. Siebe Gorman and Co., Ltd., 187, Westminster Bridge Road, London, S.E.1., at a cost of about 25/-.

Another method for testing light depends upon the liberation of iodine from an acid solution of potassium iodide in presence of air. The solution is put in a stoppered bottle, preferably of quartz, and is placed on a white ground. At the end of 24 hours the iodine liberated by the action of light is determined by the use of a standard solution of sodium thiosulphate.

(N.B.—Further information regarding apparatus can be obtained from the offices of the Society).

Smoke and Health.

By John S. Taylor, M.D., D.P.H.

Assistant Medical Officer of Health, Manchester.

Respiratory Effects.

It seems strange that of the three necessities of life, viz., food, water and air, legislation for air should have been so long delayed in spite of man consuming seven times as much of it by weight as he does food and water. We inhale about 35lbs. of air daily, and as a result, dwellers in industrial cities have lungs more or less similar to those of a coal miner, not pinkish in colour like those of a child or one who tills the fields, but blackened, both on the surfaces and in the depths, due to the deposit of carbon. The tarry and sulphur acids, less visible but infinitely more dangerous than the carbon, set up an irritation in the mucous lining of the windpipe and smaller tubes.



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Chronic catarrh supervenes. The mucous lining becomes rough and thickened, the surrounding tissues lose their elasticity and become leathery in texture. The changes produce symptons of chronic bronchitis, symptoms resulting from persistent irritation, partial collapse of the lungs and incomplete oxygenation of the blood. To make up for this deficiency certain areas of the lungs undergo compensatory distension. The air vessels are enlarged, but owing to the change in their lining are functionless. Their walls are atrophied and the fine network of blood vessels disappear—a condition termed emphysema. Now the blood is incompletely purified ; the heart has to work overtime to rid the blood of its poisonous gases ; ultimately like the completely exhausted but flogged horse it stands still—heart failure. This, therefore, is the sequence of pathological changes, catarrh, bronchitis, emphysema, heart failure.

Infantile Mortality.

The total deaths under one year per 1,000 births was for 1928 :—

County Boroughs	.. ..	74.4
Rural Districts	.. ..	55.5

Dr. W. A. Brend believes that a smoky and dusty atmosphere is one of the most noxious influences producing these results, and " that as a cause of infant mortality it transcends all other influences." If one of the main effects of soot is to cause bronchitis, and lower the resistance of the respiratory organs then his argument is borne out by such figures as these : Roughly 1/12 of all the deaths in England and Wales are due to respiratory diseases. In Manchester the respiratory death rate is twice as great. Again, for all Rural England the infantile death rate for 1928 due to pneumonia and bronchitis was 8.8 and for the county borough 16.27.

The Biological Action of Light.

The epidermis reflects and scatters rays which fall upon it, but some portion of the visible rays penetrate and are absorbed by the blood, warming it. The dark heat rays, on the other hand are mostly absorbed by the epidermis. The body is not immediately conscious of the effects of the Hertzian, ultra-violet, X-and gamma rays. A latent period of two or three weeks follows exposure to X- or gamma rays before erythema of the skin and irritation result. With ultra-violet rays the latent period is limited to hours. They penetrate further than the deeper epidermic cells. In them, when absorbed they produce profound atomic changes in the bioplasm—the tissue cells—followed by chemical changes which cause such a degree of irritation as to tend to dilation of the subcutaneous blood vessels, exudation of lymph, increase of lymphocytes, and rise in the bactericidal power of the blood.

Rickets.

Recent researches into the etiology, prevention and cure of rickets have shown that the diseased calcification of the growing bones result from (a) a diet deficient in anti-rachitic substance, and or (b) lack of ultra-violet rays. Either the addition of the active principle in cod-liver oil or ultra-violet irradiation for a few minutes daily will wholly stop rickets developing and cause a minimal amount of phosphorus and calcium in the diet to be absorbed and utilised in bone building.

The Value of Irradiation.

There is now abundant evidence that irradiation is one of the most powerful remedies available for the treatment of localised tuberculosis, of Skin, Bone and Hands, and for maladjustments of metabolism. Most authorities are agreed that the results in phthisis cases are not encouraging, yet it would appear that if this remedial agency increases the bactericidal power of the blood, it should be of importance in the treatment of pulomonary cases, provided that they are very carefully chosen and provided it is properly supplied.

Psychological Effects.

The psychological effects of gloom require consideration. " There is nothing more profoundly ingrained in our psychology than the beauty of light and the hateful ugliness of gloom." This psychology of light is an important factor, and its actual material results have been demonstrated by the Industrial Fatigue Research Board in that the output of work was found to be definitely diminished when lighting conditions were bad.

The Smoke Problem of Great Cities

BY

Sir Napier Shaw LL.D. Sc.D., F.R.S. AND **J. Switzer Owens** M.D., A.M.I.C.E.

Demy 8vo. - 15/- net

The whole case for the prosecution against smoke evil is here stated unanswerably and at length in a well-ordered argument, setting out the nature and extent of the problem in all its ramifications and suggesting in which direction remedies are to be sought.

In the Greater London area the financial loss sustained is estimated at over £8,000,000 each year, which is equivalent to approximately 24s. per head. In Manchester the cost is assessed at 30s. per head.

The expenditure involved in restoring and repairing public buildings in one year amounted to more than £120,000.

These facts alone illustrate the vital importance of checking the wholesale discharge of impurities into the atmosphere.

CONSTABLE & CO. LTD.

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The Effects of Smoke upon Buildings.

The damage to buildings is one of the most obvious effects of the fall of smoke deposit. The tarry nature of the deposit enables it to adhere to whatever surface it may fall upon. The blackening of stones and brickwork, painted surfaces, and even interior paintwork and decoration is the initial effect, resulting in a considerable aesthetic loss and necessitating much expenditure if the original appearance is to be maintained. The sulphurous and sulphuric acids in the deposit, or brought down by the rainwater tend to react with the stone, which is composed generally of limestone (calcium carbonate) with the formation of calcium sulphate. An increase in volume, or swelling takes place, so that the stone bursts, and the surface flakes off. Samples taken 1″ from the surface of the stone have been found to contain up to 33% calcium sulphate, which has also been found to a depth of nearly ½ inch. With magnesian limestone the very soluble magnesium sulphate is formed, causing a much more pronounced decay. The drift of smoke may extend for considerable distances into the country, so that erosion of stone is found to be very marked in many buildings far from the cities.

Serious corrosion takes place in metal structures of all kinds, which require frequent attention and re-painting to preserve them. Steel rails in a town have been found to lose over one-pound weight per year as compared with a loss of only 0.18 lb. on the sea-coast.

Sir Frank Baines has estimated that the cost due to smoke damage to government buildings is not less than £120,000 per year.

Smoke and Vegetation.

Smoke acts upon vegetation in various ways, including :—

1. By the reduction in sunlight.
2. By the accumulation of solid deposit on the foliage of the plants, which closes the breathing pores of the leaves.
3. By acids lodging upon the leaves and growing points of plants, which as a consequence are burnt and killed.
4. By the surface of the soil being covered over with a deposit of soot to such an extent as to hinder a free passage of air to the roots.
5. Soil untilled for some time accumulates acid from the deposit and becomes " sour," and the lime content may be noticeably reduced in quantity, giving crops which in their turn are also lime deficient.

The combined effects of these actions is very disastrous, as was shown by the well-known experiments carried out at Leeds University. The rate of growth of different types of vegetation was shown to diminish proportionately with an increase in the degree of atmospheric pollution in the area in which they were placed.

From a purely economic viewpoint the loss is serious, especially in the cultivation of land in the industrial areas and in the upkeep of city parks and gardens. In one large city it is estimated that with clean atmosphere there would be £80 worth of replacements each year in the various parks. As it is, no less than £1,500 a year has to be spent on replacements. The corresponding aesthetic loss, especially in already drab towns, does not need enlarging upon.

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For large Central Heating Boilers use Anthracite "WASHED NUTS" or "COBBLES."

For Steam Raising use "PEAS," "BEANS," or "PEA-NUTS."

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The English Law relating to the Emission of Smoke.

Smoke emission may be considered as a nuisance at common law, and actions have been successfully brought through this medium. It is also dealt with in local Acts, but the main legislation is the Public Health Act, 1875 (for London the Public Health (London) Act, 1891), which has been extended and somewhat amended by the Public Health (Smoke Abatement) Act 1926. In the 1875Act, Section91, sub-section 7, relates to the smoke nuisance, and is divisible into two clauses. The first, concerning "any fireplace or furnace which does not as far as practicable consume the smoke arising therein" is rarely used, as the phrase "best practical means" enables "an effective defence on technical lines to be set up." It is followed by a second part which reads: "Any chimney (not being the chimney of a private dwelling house) sending forth black smoke in such a quantity as to be a nuisance, shall be deemed to be a nuisance liable to be dealt with summarily in the manner provided by this Act."

The 1926 Act amends this clause to include any smoke, "notwithstanding that the smoke is not black smoke."

Certain processes are exempted. Section 334 of the 1875 Act reads: "Nothing in this Act shall be constructed to extend to mines of different descriptions so as to interfere with or to obstruct the efficient working of the same; nor to the smelting of ores and minerals, nor to the calcining, puddling and rolling of iron and other metals, nor the to conversion of pig iron into wrought iron, so as to obstruct or interfere with any processes respectively." The 1926 Act adds to this the processes of re-heating, annealing, hardening, forging, converting and carburising iron and other metals. After five years from the passing of the Act the Minister of Health may, by a Provisional Order, exclude any of these processes, or may, at any time, include others.

Under these clauses a local authority has to prove that a nuisance exists, but provisions are laid down in the 1926 Act by which byelaws may be made fixing certain standards of smoke emission, which, when exceeded, constitute a nuisance; the onus being upon the defendant to prove otherwise. The Ministry has drafted a model byelaw in which the standards are for *black* smoke emission for a period of two minutes aggregate within any continuous period of thirty minutes. This has been applied for, and granted to, a number of authorities, although in some cases the standard has been lowered to three minutes in thirty. No byelaws dealing with smoke other than black have been made, as so far no definition of smoke other than black has met with the approval of the Minister of Health.

The 1926 Act increases the penalties laid down by the 1875 Act, both when a Court order to abate is obtained (from £5 to £50) and for non-compliance with an order (from 10/- and 20/- per day to 40/- and £5 per day).

Powers are given in the new Act (Section 5) for the making of byelaws requiring the provision in new buildings other than private dwelling houses of such arrangements for heating and cooking as are calculated to prevent or reduce the emission of smoke. No such byelaws have been drawn up, owing to difficulty in formulating them satisfactorily.

By Section 6 of the 1926 Act local authorities may combine to carry out their duties, and Section 10 permits combination with other local authorities to undertake researches and investigations.

The position with regard to ships is unaltered from that laid down in Section 110 of the 1875 Act; which is an unsatisfactory method. Action against railway locomotives and steam motor wagons is dealt with under the Railway Clauses Consolidation Act, 1845, and the Regulation of Railways Act 1868; the Highways and Locomotives Acts of 1878 and 1896, and the Heavy Motor Cars Order, 1903. With regard to railway locomotives it is enacted that they must be constituted to consume their own smoke. Owing to the wording in connection with highway locomotives there is no effective control over nuisances arising from these vehicles.

There is no legislation whatever concerned with smoke from private dwelling houses.

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The Scottish Law relating to Smoke Emission.

The general law in Scotland with regard to smoke nuisances is contained in the Smoke Nuisance (Scotland) Abatement Act, 1857, the Burgh Police (Scotland) Act, 1892, and the Public Health (Scotland) Act, 1897. The 1857 Act (Sections 1 and 2) requires all furnaces to consume their own smoke ; penalties, however, may be remitted if it is proved that the best practical means have been used and that negligence has not occurred.

The Burgh Police Act, Section 384, requires under penalty any person using or suffering to be used any furnace or fire (except a household fire), to use the best practicable means for preventing smoke and to attend carefully to such furnace or fire so as to prevent, as far as possible, the escape of smoke. A fine not exceeding £5 may be inflicted. A proviso with reference to mines and certain metallurgical processes is included, following the wording of Section 334 of the English Public Health Act of 1875. The Act implies to all burghs except Edinburgh, Glasgow, Aberdeen, Dundee and Greenock, which, however, have power to adopt it.

The Public Health (Scotland) Act of 1897, Section 16(9), defines as a nuisance, liable to be dealt with summarily in manner provided by the Act, any fireplace or furnace (situated within the limits of any Burgh or special scavenging district, and used in any manufacturing or trade processes) which does not, so far as practicable, consume the smoke arising from the combustible matter used therein ; and Section 16(10) any chimney, except that of a private dwelling house, sending forth smoke in such quantity as to be a nuisance or injurious or dangerous to health. Sections 24 contains a proviso to sub-section 9 of Section 16 enabling the Sheriff to order the adoption within a definite time of what he (the Sheriff) judges to be the best practicable means for mitigating the nuisance or the injurious effects thereof, and to suspend his final determination of the case pending the carrying out of this work.

The earlier Acts are seldom used on account of their ambiguity, the protracted nature of the proceedings required and the difficulty of proving and establishing complaints as the whole onus of proof is on the Complainer.

In addition to the above mentioned provisions of the genera law, certain towns have their own local Acts. In Glasgow the users of any chimney emitting two minutes or over of *dense* smoke in any observation not exceeding 60 minutes should be prosecuted. There is no definite standard of smoke density constituting a nuisance defined, but the one adopted mentally in practice by the Smoke Inspectors is that based on the scale of smoke densities, as shown by the Ringelmann chart.

It will be observed that in the Scottish Acts the phrase "Black Smoke" is not used ; the emission of smoke of any colour in such quantity as to be a nuisance or injurious or dangerous to health is an offence against the law. The Glasgow Act of 1892, it may be remarked, not only omits the word "black," but applies to all processes and fireplaces, excepting only a household fire.

Industrial Smoke Abatement.

By Sidney N. Duguid, B.Sc.

The emission of black smoke from factory chimneys is not only a sign of fuel waste, but it causes injury to health and is destructive of all kinds of materials, buildings, and vegetation. The co-operation therefore, of manufacturers, managers, engineers and others, in a determined effort to abolish this nuisance would not only benefit mankind generally, but would also, by reducing the fuel bill, put money in their pockets.

If we regard all smoke as unconsumed fuel, the problem we have to solve becomes clear, and simply consists of finding the conditions under which the fuel we are using will be completely burnt in the furnace.

All fuel relies for its combustion upon the oxygen in the air, and consequently if we are to completely burn the fuel, we must arrange for sufficient air to be present to supply this oxygen. This in turn implies the necessity of using the correct draught, as obviously, if too little draught

is used there will not be sufficient oxygen to completely burn the fuel, and on the other hand if too much draught is used the air in excess to that required for combustion purposes, will lower the temperature of the furnace and thus cause smoke, and will also carry heat up the chimney to waste. Fortunately, by determining the percentage of carbon-dioxide (CO_2) present in the gases which escape up the chimney we can estimate whether we are supplying the correct amount of air for complete combustion. In practice it is necessary to provide a slight excess of air above the quantity theoretically required, and when the fuel is coal, this quantity is indicated by the presence of an average percentage of 12% CO_2 in the chimney gases. By taking extra special care it is possible to raise the average percentage of CO_2 up 14% and when powdered fuel or Oil is used, an average of 16% may be obtained, but for ordinary practice, with solid fuel, 12% is considered good, and with this percentage there is sufficient oxygen present to meet fully the requirements of the fuel, and the temperature of the furnace is such that combustion takes place without smoke. An occasional test for the presence of carbon-monoxide is advantageous as waste occurs if this combustible gas escapes up the chimney unburnt.

From the above it may be deduced that the commonest factors tending to produce smoke, in an ordinary coal burning boiler plant are :—

(1) The use of too much or too little draught.
(2) Air entering through leaky settings instead of by way of the furnace only, that is, either through or over the fire.
(3) Careless and irregular firing.
(4) Insufficient Boiler Plant, which makes it necessary to force the fires to meet peak loads.

The steps necessary to counteract the above factors are obvious, and they do not involve undue expenditure. Unless sensitive draught gauges, and apparatus for testing CO_2 are provided then your Boiler house staff is working in the dark, and their responsibility for the production of black smoke or the wastage of fuel is much reduced.

A knowledge of the composition and the heat value of the fuel that is being burnt is very valuable, as different classes of fuel require different treatment, and therefore arrangements should be made at frequent intervals for the determination of the moisture, ash, volatile matter, fixed carbon and calorific value.

Scale inside the Boiler and tarry, sooty deposits on the heating surfaces are indirect causes of black smoke, as they present the passage of heat to the water, and thus make it necessary to burn more coal than the furnace can deal with smokelessly.

To find out whether the heat from the burning fuel is raising as much steam as it ought to do, a meter should be installed for measuring the boiler feed water. By comparing the weight of water evaporated, as given by the meter with the weight of coal burnt, it is possible to say whether your plant is efficient or not, and generally speaking, the more efficient the plant, the less likelihood there is of the production of black smoke.

Many other appliances might be mentioned as aids to smokeless and economical combustion, such as steam meters, thermometers, Pyrometers, steam accumulators, etc., and these are being employed in all modern factories, but the first essential step is to create in the minds of the men that pays the coal bill the conviction that by polluting the atmosphere he is committing an anti-social act as well as throwing money away.

The Domestic Smoke Nuisance.

By Miss Marion Fitzgerald, A.R.San.I.

It is not necessary here to deal with the vexed question of how much of the total amount of air pollution is due respectively to the house chimney and the factory chimney. There are not enough data on which to base an authoritative opinion. There is no doubt that smoke from house chimneys play an important part in polluting the air ; it is very tarry, sticks wherever it falls, and is not easily removed by wind and rain. The really important point is that an attack must be made on domestic smoke as well as on industrial smoke.

There is no law against domestic smoke. Most people would agree that the time has come for that, but there is evidence that a sense of good citizenship, combined with enlightened self-interest, is leading householders in steadily increasing numbers to adopt smokeless methods of heating and cooking as far as possible. The forecast may be described as promising, largely on account of the new attitude towards cleanly and labour saving methods of heating. Then, again, invention and research are playing a useful part, not only in the better production of gas, electricity, and the smokeless solid fuels, but also in the design of grates and ranges on scientific principles.

Other sections of this handbook deal separately with gas, electricity and solid fuels. It is proposed here to touch on them from the point of view of a householder who desires to reduce if he cannot abolish totally, the smoke from his chimneys. His choice will not be a wholly free one because it must depend very largely on where he lives and what facilities are offered locally at a reasonable price. *He must to a large extent be guided by what he can get for what he can pay.* In some towns he will find himself much more fortunately placed as regards one particular method than in another It may in certain areas be profitable to use two or three different methods in combination. The following considerations ought to be borne in mind :—

(a) The coal fire with all its faults is cheap (for long period heating) and cheerful, hence its popularity. In recommending substitutes it is necessary to pay attention both to the economic and aesthetic aspects.

(b) It is very important to distinguish between long period and short period heating. Although the coal fire is relatively cheap, it is not economical to keep it burning from morning to night in a room used for three meals a day, lasting, say, half an hour each. It is not extravagant to use a gas fire or an electric heater in a bedroom to dress or undress by, but it is distinctly costly, although at the same time clean and labour-saving, to use either continuously through an illness of several weeks duration. Drawbacks and advantages must be weighed and a balance struck.

(c) Some fuels, though relatively expensive, are highly efficient. This is specially true of electricity, which can reach a 100% efficiency, while the coal fire has, according to the latest investigations, only 20% to 25%. A good gas fire has an efficiency of 50% to 65%. Both gas and electricity reach their maximum efficiency rapidly, which gives them a great advantage over coal when heat is wanted quickly and for a short time.

(d) The psychological aspects are important. Enthusiasts are willing to try new methods but are easily dashed if they encounter obstacles. This is specially true in connection with the solid smokeless fuels where continuity of supply and also of quality cannot always be guaranteed.

There is little doubt that people who can afford it are ready to use smokeless methods for some of their heating, if not for all. The poor who use one coal fire for all purposes constitute the real difficulty in reducing domestic smoke.

Long after suburban houses are running mainly on gas, electricity or solid smokeless fuels, the little houses massed together in congested districts will be polluting the air with smoke from their chimneys. The great line of attack here is to popularise gas coke, but :—

(a) it must be of good quality.

(b) it must be appreciably cheaper than coal.

(c) people must learn how to use it.

(a) and (b) are the concerns of the gas undetrakings and they would do well to turn their attention to these points. As regards (c), the National Smoke Abatement Society and their speakers can play a useful part in teaching householders how to burn gas coke to the best advantage.

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Smokeless Fuels.

Anthracite.

Anthracites are the class of coal with the highest percentage of fixed carbon, yielding less than 8% volatile matter at 900 °C. In this country they are found mainly in South and West Wales, and occur also in Scotland, while large deposits exist in China and Pennsylvania. Anthracites are marked by a low ash content and comparative freedom from sulphur, are clean to handle and burn smokelessly. About five million tons are extracted annually in Great Britain, of which 75% is exported, and only 500,000 tons used for domestic purposes in this country. The fuel is used largely on the continent for domestic heating, the closed stove being more popular there than here. France, Italy, Germany, Sweden and Holland take large quantities.

The chief factors operating against a desirable wider popularity in Britain have been the relatively high price and the difficulties of combustion. The real cost is, however, considerably lower than the price, owing to the high calorific value of the fuel, its low ash and moisture contents, and its remarkable lasting powers, which place it upon a competitive basis with bituminous and carbonised coals.

A good draught is essential for efficient combustion and the greatest use of anthracite for domestic purposes has been in the closed stove, of which there are many types, and in furnaces for central heating. It has been burned, nevertheless, in open fires and kitchen ranges in West Wales in some cases without re-lighting for generations. There are now upon the market open fires of attractive appearance designed specially to burn anthracite (and cokes). The difficulties of ignition may be overcome by the use of the gas lighter which is thrust into the fuel, or, in the case of the special grates, placed along the front. Anthracite is also used in domestic boilers for small scale central heating and hot-water supply, and in the combined range, for cooking purposes.

Industrially, anthracite is used mainly for special processes where a pure smokeless fuel is required, such as for drying malt, curing rubber, etc. A strong draught is, of course, necessary, and a steam jet may be used to advantage.

Steam Coals.

Allied to the anthracites are the Welsh steam coals, which are midway between the true anthracites and the bituminous coals. These coals are smokeless, although containing a higher percentage of volatile matter, and can be used for a variety of industrial purposes. Graded steam coals suitable for domestic use are now obtainable, and like anthracite and coke, can be used to advantage in the domestic boiler and in the new types of open fire.

Electricity and Smoke Abatement.

(Contributed by the British Electrical Development Association.)

In the world of to-day the most important of all raw materials is power, it is the most important because it is the most universally required. It is not too much to say that, at the period in which we are now living, the standing of any nation is really determined by the extent of its knowledge of the powers of nature and the use it makes of them, thus it is easy to see that the prosperity of Great Britain depends, at the bottom, upon its ability to obtain an abundant supply of cheap but efficient power, and, the geological formation of our country clearly indicates that, whatever may be the nature of the power we use, its chief source will lie in—Coal. But while our native supply of coal is still abundant, it is not inexhaustible ; coal is a wasting asset, therefore our welfare really depends upon the economic and efficient use of the coal resources that remain to us, not that we need use less coal than we do, but rather that we should extract more power out of the coal we use. Many of our present methods of using coal are particularly wasteful. Take, for instance, the domestic grate and the kitchen range. They require good

quality coal to give effective results, but as the work they do can be done more effectively, more cleanly and less laboriously by electricity, and as electricity is usually generated by the aid of low grade coal which is too poor in quality to be used in the above way, the increasing use of electrcity for domestic purposes provides an effective mehtod of coal economy to which increasing attention should be given.

Steam Power and Industrial Development.

The rapid and extensive development of industry during the last century was made possible by the discovery of the power of steam. This discovery enabled us to produce goods on a large scale and, by means of the steam locomotive and the steamship, to transport them quickly and cheaply to all parts of the world. It led to the creation of many new industries and increased the demand for men and capital. But while the advantages of steam power were open and obvious, there was a debit side to the story. There were certain defects inherent in the use of steam power which have left effects with which we have to struggle to-day as best we can. Owing to the fact that steam power can only be used at or near the point of generation, it sucked people away from the country-side and packed them into towns and cities, thus creating those problems of urban congestion with which we are now attempting to deal.

The Advent of Electricity.

For the effective solution of most of the problems which we have inherited from the Steam Age, from the cleansing of the air above our cities to the repopulation of the deserted countryside we require a form of energy more convenient, more mobile, and more efficient than steam. Such a power is Electricity. By its use our coal reserves can be transformed, with less waste than by any other known method, into a form of energy that can be entirely used, while so protean is this new power that it can be transformed with ease into light, heat or motive power to fit the need of the moment. Once electricity is introduced into the factory, the farm, or the home it can be used for Light, Heat and Power in a diversity of ways that no other form of energy can equal; its general use will go far to dispel those clouds of smoke that hang like a pall over our towns, cities and industrial districts, therefore, while increasing our economic and domestic efficiency, it can at the same time add to our personal cheerfulness and health by giving us clean air to breath and bringing us once again into direct contact with the health-giving rays of the sun.

Recent Progresses.

It is interesting to learn of the progress which has so far been made in the use of electricity for all purposes, and the rapid growth in the consumption of electricity since the war, may be somewhat surprising to those who are not familar with recent developments. Thus the units of electricity sold in 1928 were about ten times the number sold twenty years previously, and about twice the number sold in 1921. The latest official figures which are available show that in the year 1927 no less than 6,850,162,808 units were sold to consumers, representing an average consumption of 155 units per head of population. Rather more than 25% of the total sales were for lighting and domestic purposes, the remainder being utilised for power in industry, and for supplies to tramways and electric railways. The above figures relate only to undertakings which are authorised to give a public supply of electricity, and as there are still a considerable number of private electricity generating plants used for supplying power to factories and works, the total use of electricity for power purposes is greater than is shown by the above figures.

In the past due to the prior existence of alternative forms of power and heat, supplies of electricity have not been generally available all over the country, and in 1926, following the recommendations of an important committee set up by the Government to consider the whole question, an Act of Parliament was passed authorising the creation of a Central Electricity Board, which would facilitate the provision of cheap and abundant supplies of electricity in all parts of the country. At that time there were some 480 individual generating stations, of which only about fifty could be regarded as being of really suitable size and efficiency.

The main purpose of the Central Electricity Board is to establish a system of main transmission lines, called the " Grid," for the purpose of interconnecting the principal generating stations throughout the country, and giving supplies on a wholesale basis to undertakings which are not sufficiently large to have efficient generating stations of their own. By concentrating the generation of electricity at the comparatively few suitable stations, a large saving in capital

expenditure will result, and operating costs will be reduced so that electricity is universally available at the low price at which it can now be obtained in certain places. Schemes covering practically the whole of the country have now been adopted by the Central Electricity Board, and parts of the " grid " have already been erected. In the future the Central Electricity Board will be responsible for what may be called the mass production and transmission of electricity from the main generating stations to the electricity distributing undertakings, these undertakings being responsible in their respective areas for the retail distribution to consumers, and for the development of the supply. At the present time, however, the average price of electricity is already low in most districts, as will be seen from the fact that the total population covered by the areas of supply undertakings charging 1d. per unit or less for electricity used for domestic purposes, other than lighting, is more than two-thirds of the total population of the country. Also in regard to the cost of electricity for power purposes, the average price, including all types of machinery, from the largest cotton mill to the smallest motor in a carpenter's shop, is less than 1d. per unit. Thus electricity is already helping towards industrial prosperity, and will increase the possibility of developing industries in areas where there are none at present, in fact this process of decentralisation has already been noted, as owing to the advisibility of electric power, industries are being established in some of the southern parts of the country, where up to now, little industrial activity has been observed.

There are many electric homes to-day, not the homes of the well-to-do, but homes where every item of expenditure has to be carefully considered, and as the work of the Central Electricity Board develops, and cheap supplies become more generally available, the number of such electric homes will increase very rapidly. Life will be made easier with the help of electrical appliances, and at a cost which is trifling in comparison with the advantages obtained.

The Contribution of the Gas Industry towards Smoke Abatement.

By J. R. Willis Alexander, M.A., LL.B., F.I.Arb.

During the last one hundred and twenty years, the Gas Industry has made an increasingly substantial contribution towards smoke abatement and it is not without significance that the halving of the sootfall of London during the fifteen years to 1926 coincided with the bringing into use of double the number of gas appliances. Even so, the conversion of coal into filth by the process of burning it raw, costs the Nation over eighty million pounds yearly in waste and damage, the greater and more destructive part of the smoke coming from the forty million tons of coal annually used for domestic purposes.

The Problem.

Smoke adds £290,000 yearly to the cost of the household washing of Manchester, although the increased consumption of gas in that city from 1904 to 1924, has displaced the burning of an amount of coal which would have added 8,800 tons of soot to her atmosphere yearly. One London Gas Company increases its appliances on hire alone by 80,000 a year, but the City of Westminster still gets in winter less than 40 per cent. of the available sunshine.

Four times as much coal is burnt in the raw state as is turned into gas, coke and by-products by the process of carbonization. Until the position is at least reversed and the pollution of the atmosphere correspondingly reduced, one half of our three-year-old infants will continue to have rickets. Further, one death in four in three London Boroughs will still be due to lung complaints, and Local Authorities throughout the country will go on spending over two-and-a-half million pounds yearly on the treatment of tuberculosis.

Coal is the basic fuel of this country. The possible alternatives can be ignored. We are not in the fortunate position of the United States of America, where a pipe line can be planned to convey natural gas from the gas fields of Texas Panhandle to Chicago, a distance of 1,000 miles. Our natural prosperity largely depends upon the conservation (the efficient utilization) of our coal, the supplies of which are not unlimited. If we burn it raw there is a loss of 75%. Used to generate electricity, 93% is wasted. At a gasworks, however, but 23% of the coal is used up in the process of carbonization, whilst valuable chemical by-products, entirely lost in the combustion of raw coal, are preserved.

A Solution in Carbonization.

Illustrations of the evils and economic wastage inevitably associated with the burning of raw coal, could be multiplied indefinitely. But for the purpose of these observations, it is assumed that the vital necessity for smoke abatement has been established and that it remains to demonstrate that this can best be achieved by the substitution of carbonization for combustion. We shall quite properly be required to shew that the process of carbonization, admittedly cheaper and more healthy from the Nation's point of view, is directly of economic advantage to the individual user of heat and power—in other words, that the industrial and domestic consumer will not have to pay more. Unless this is done we shall find, in a competitive and complex age in which the struggle for existence becomes increasingly acute, that the industrialist and the householder will continue to use crude coal.

Gas: The Cheapest Fuel.

On fuel cost alone, gas is the cheapest fuel of all for intermittent employment and coke the cheapest fuel for constant use. If, however, factors having economic value other than fuel cost are taken into consideration, as they should be, gas can be demonstrated to be the cheapest fuel for both intermittent and constant use, for almost all purposes. These factors, in the case of the domestic consumer of gas are, a considerable saving in the wear, tear and cleaning of the house and its contents, the elimination of labour and storage and a reduction in the expenditure of the nervous energy of members of the household and the staff, by reason of these considerations and the fact that the service is immediately available as and when required, without trouble or uncertainty and to a degree which can be regulated. In the case of the use of gas, instead of coal, for industrial processes, the economic factors additional to fuel cost which have to be considered when assessing the comparative cost are, *inter alia*, the saving of transport, storage and labour and the improved output resulting from a constantly maintained and exactly regulated temperature and better conditions for the workers.

Gas in Industry.

Gas is employed in some three thousand separate trades in this country and the Fuel Department of the National Federation of Iron and Steel Manufacturers, in an independent report to Sheffield Manufacturers, has recently stated that the gas-fired furnace has the " most perfect control with the greatest flexibility in operation," whilst oil and electricity in general " are ruled out on the score of cost at least for anything other than small work."

In the motor and cycle industry, the versatility of gas is well illustrated by its use in such processes as case-hardening, the bending of glass and wood, and enamelling. The Morris Motor Works at Cowley consume over fifty million cubic feet of gas yearly, whilst the time taken to overhaul and repaint a London omnibus has been reduced from sixteen days to four by the extensive use of gas.

In shipbuilding about six million cubic feet of gas is used on a ship of average size. Gas furnaces used for heat tretament processes in ship yards, show a 70% economy over coal and the heating of rivets by gas, enabling 300 to 500 more rivets per man per day to be put in, has done much to remove labour troubles, reduce cost and improve the work.

Newspaper printers and publishers require absolute certainty and they are, therefore, large consumers of gas, which shews many advantages over the fuels previously used, particularly in the melting of stereo metal. By reason of its superior colour, gas lighting is much appreciated in printing and textile works. For the five main processes in the manufacture of textiles, gas is extensively used, one Bradford Mill alone consuming 12 million cubic feet of gas yearly. In the metal industry, gas is used because of its efficiency and economy, for such purposes as annealing, die casting, metal cutting, soldering and brazing in processes as diverse as the cutting of twelve inch metal to the making of nibs, needles and jewellery.

Of the many advantages offered by gaseous fuel, cleanliness is all-important in the food and catering trades, and this—together with its reliability, controllability, adaptability, elasticity and economy—has established gas almost universally with the caterer. Hotel and Restaurant kitchens are equipped with gas apparatus, whilst gas is used not only for such processes as the baking of biscuits and cakes and the making of chocolates, but for the incubation of eggs, the ripening of bananas, the singeing of pigs and refrigerating. There are gas-heated travelling ovens which bake nearly 2,000 half-quartern loaves per hour,whilst the gas-operated refrigerator, very necessary since the use of preservatives in foodstuffs was forbidden, is economical and efficient in operation and, by reason of its lack of moving parts, inexpensive to maintain.

Gas in the Home.

The domestic uses of gas are more apparent than the industrial, since with over 90% of the population cooking by it, there must be very few who are not conversant with its utility. It is satisfactory to think the problem of cooking without smoke has not only been solved, but put into effect by the Gas Industry, which during the past few years has done much to improve the appearance and utility of its cookers, of which over six million are on hire alone. Of the several types of highly efficient appliances suitable for the supply of hot water, the gas storage heater is making tremendous progress owing to its great economy and simplicity in operation and the ease with which it can be fitted and maintained. The hot water taps throughout the house are automatically supplied and fifty gallons of water at a temperature of 140°F. cost but sixpence. This heater has resulted in some Gas Undertakings contracting to keep a house supplied with hot water to the capacity of the appliance for a fixed sum per week. The coke boiler, which provides a constant and heavy supply of hot water at a fuel cost lower than any other, has been enormously popular of recent years. It is anticipated that the coke boiler or the gas storage heater, geyser or other appliance, will before long be regarded as universally essential in every house as the gas cooker.

Unfortunately, the problem of smokeless domestic heating is less completely solved, largely owing to the prejudice in favour of coal, forty million tons of which is used for domestic purposes, the bulk of it in open grates for heating rooms. Many people, remembering the old-fashioned unsightly gas fire (which heated too much by convection and was often very badly fitted), have to be convinced that the modern gas fire has the hygenic and aesthetic properties of the traditional coal fire. In point of fact, the modern gas fire is an artistically designed and healthy open fire, giving out radiant heat, aiding ventilation, capable of instant regulation, free of smoke and performing its task more efficiently and economically (if allowance is made for expenses additional to solid fuel cost) than would coal, coke or electricity.

Street lighting by gas continues to maintain its established superiority, as Regent Street, Scarborough Spa and the streets of Lewisham and Paris demonstrate, whilst for internal lighting, improved switches enable the light to be dimmed and turned on or off from the doorway. Gas Coppers are standard fittings in many of the new houses, whilst gas irons, gas pokers and refrigerators are amongst the more popular appliances available for those who care to make full use of the Serivce which the Gas Industry offers.

Valuable By-Products.

The use of Coke has been extended by the reduction of its moisture and ash content, by rendering it more readily ignitable and by grading it in several sizes for different purposes. A good solid smokeless fuel for open fires, its use is facilitated by the increasingly popular gas fired, coke burning grate. In 1929, the Gas Industry recovered from carbonizing over twelve million tons of coke, 215 million gallons of Tar and 128 thousand tons of Sulphate of Ammonia, all of which would have been lost had the coal been burnt raw. The innumerable derivatives from these by-products of the manufacture of gas, illustrate the romance which resides in a lump of coal, nearly 18 million tons of which were carbonized by the Gas Industry in 1929. From coal tar there come creosote oil for wood preserving, pitch for producing briquetted patent fuels, prepared tar for road spraying, dyes for textile and other industries, high explosives, medicines, antiseptics, saccharine, perfume, varnishes, benzole and motor spirit. It will thus be appreciated that the production of coal tar is of national importance in both Peace and War. It should not be exported, in which connection it is interesting to record that of the 1,500 dyes in use, the proportion of those home produced has increased from 15 to 80 per cent. in recent years.

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The Progress of Gas.

Such is the nature of the Gas Industry, such is its economic contribution to National wealth and health, such is its service to industry and the home and such is the manner in which the more extensive substitution of carbonization for the combustion of coal, would solve the problem of smoke abatement. And if there still be a lingering doubt as to the future of Gas, let reference be made to the Board of Trade Return relating to statutory gas undertakings in Great Britain for 1929, which shews unmistakable but, fortunately, not spectacular progress in every direction. In spite of bad trade and unemployment, 3.6 per cent. more gas was sold in 1929, an amount equal to the combined Gas Sales of Leicester and Liverpool or the output of Glasgow. The addition of 236,310 consumers in 1929, brought the total figure to 9,137,581 in whose service, gas mains have been increased nearly ten thousand miles in length during the past ten years. More gas was sold per consumer, whilst the increased consumption for Public Lighting was 2.77 per cent. The substantially increased production of Coke and Tar was coupled with a greater make of gas per ton of coal used, all indicating that the activities of the Institution of Gas Engineers during the past sixty-eight years, particularly in matters of Research and Education, have not been in vain ; they were worthily recognised in 1929 by the grant of a Royal Charter.

Gas Coke.

By E. W. L. Nicol.

The influence of the Gas Industry on smoke abatement cannot be measured solely by the supply of smokeless fuel in gaseous form. The solid smokeless fuel, or coke, produced at gas works in the manufacture of coal gas, represents 60 per cent. of the coal carbonized, which now amount to 17 to 18 million tons a year.

A quantity of coke produced is used in the process of gas manufacture, but the actual yearly output of gas coke, available for sale to the public is between 7 and 8 million tons, a considerable proportion of which is sold for export owing to lack of appreciation and demand in many of the districts where it is produced.

Gas coke is sold for domestic and industrial purposes in open competition with coal. Preference for coke in most cases is due, not merely to its smokeless characteristics, but also for its inherent efficiency and economy, as compared with coal containing a high proportion of volatile combustible matter, which is easily wasted in the process of combustion, in the form of smoke and unburnt gases.

The Fuel Research Board have pointed out that coke gives more radiant heat than coal of a higher calorific value. Reports on comparative tests, made by Dr. Margaret Fishenden of H.M. Fuel Research Board, prove the radiation efficiency of gas coke, burning in open firegrates, to be 24 per cent. to 28.5 per cent. as compared with 21 per cent. to 24.5 per cent. for good quality house coal.

A published report on a series of comparative tests made by Dr. Osborne, Medical Officer of Health, Salford, with coal and coke in modern all-firebrick well-type firegrates, states that to maintain an equal room temperature the average daily consumption of coke was 15¼ lb. With coal as fuel, the average daily consumption was 22¼ lb., the saving effected being more than one-third, plus the difference in cost.

Open Coke Fires.

The essential features of a satisfactory open coke fire are substantial firebrick insulation at the back and sides of the grate, and wide-spaced fire bars. The chimney draught in an open fire does not, and cannot, greatly influence the combustion of the fuel in the open grate. A coke fire is kindled in the usual way, with paper and plenty of firewood ; but the coke must be broken and graded to $\frac{3}{4}''$ to $2''$ size. A sheet metal " blower " or " blazer," used to concentrate the chimney draught on the fuel, or a gas " poker burner " greatly facilitates kindling.

Recent improvements comprise a cheap portable inset grate, provided with wide-spaced ($\frac{3}{4}''$) bottom bars, sloping sharply downwards from front to back, which can be inserted in any suitably insulated firegrate, by removing existing bottom and front fire bars. Similar coke grates, with firebrick back and sides are also available, both types being provided with fixed gas-ignition burners. This latter feature eliminates the need for laying with paper and firewood. The cost of gas for kindling is usually less than that of firewood.

A wide range of similar coke grates of the " interior " or built-in and " basket " types is also available.

The fact that open coke firegrates of this description are now being installed and used extensively in important public hospitals and institutions, after exhaustive tests, which have proved their utility and economy, should allay any doubt as to the emission of " fumes."

Domestic Coke Boilers.

Where gas is used for cooking, the kitchen range is often used only for hot water supply. For this purpose, Broken Coke is more efficient, and gives more and hotter water than coal, and usually at considerably less cost. Its use also eliminates the need for chimney sweeping and flue cleaning.

The independent coke-fired hot water boiler, which serves also as an efficient incinerator, has in many districts largely superseded the kitchen range boiler for hot water supply. The coke boiler provides a pleasant open fire when required, and provision is also made for simple cooking operations. The coke boiler is readily connected to existing hot water pipes and chimney flues. Independent external metal flue pipes for coke boilers should be avoided, as they often cause trouble due to condensation, if not properly insulated and protected.

For efficient and economical working, the coke must be graded to suit the type and size of boiler installed. For the smaller sized boilers, Coke Nuts, $\frac{3}{4}''$ to $1\frac{1}{4}''$, are usually preferred ; for the larger boilers, Broken Coke, $\frac{3}{4}''$ to $2''$, is recommended.

Much of the former prejudice against coke as a domestic fuel can be traced to inefficient grading. Most of the important gas authorities now grade their coke fuel in sizes to suit all domestic requirements, and provide an efficient domestic coke service. The breaking, screening and grading of gas coke is an economic advantage to the consumer, rendering convenience in handling, and facilitating close regulation of temperature and economy in fuel consumption. Using correctly graded coke, the boiler fire may be " banked " over periods of 10-12 hours without attention, and the fire may be kept alight overnight at trifling cost. Kept burning continuously, the average weekly coke consumption of small domestic hot water boilers, is between 1 cwt. and $1\frac{1}{2}$ cwt according to number of baths drawn off.

Central Heating Boilers.

Coke is usually preferred for use in sectional and tubular central heating boilers having intricate, and often inaccessible heating surfaces which are difficult to clean, as coke does not impair the efficiency of heat transmission by the deposition of soot and carbon scale. Coke used for this purpose is amenable to full manual and partical automatic control. It responds readily to sudden demands, and can be banked with safety over long periods without attention.

Steam Boilers.

Coke is now used extensively as fuel for steam raising in hand-fired boilers of all descriptions. With ordinary natural chimney draught (.1 to .25 in. W.G. over the fire) the usual rate of firing is from 8 lb. to 18 lb. per square foot of grate area per hour, according to the draught available. Higher rates, up to 25 lb., are usual with forced draught furnaces. Fires from 6″ to 9″ in thickness should be maintained, according to draught available and size of coke used.

The draught should be reduced to the minimum necessary to maintain the required output of steam. No secondary air over the fire is required for coke ; all air admitted to the furnace should pass through the grate bars.

Gas Coke of average quality (12,000 B.Th.U. per lb. as fired) evaporates from 9 to 10 lb. of water per 1 lb. of coke in ordinary circumstances.

The efficiency of combustion varies from about 60 per cent. to more than 80 per cent., according to conditions of use. The efficiency of the coke-fired boilers at the London County Council County Hall is stated to be 80 to 86 per cent. ; 16 to 18 per cent. CO_2 is maintained continuously.

Broken Coke is preferred for quick steaming, but ordinary ungraded gas coke is used in large sized furnaces.

Forced draught (steam-jet) furnaces improve efficiency and maintain the full normal evaporative capacity of boilers with coke exclusively as fuel. A " balanced " draught should be maintained over the fire by closing the chimney damper as far as possible. Forced-draught coke-burning mechanical stokers, of the chain grate type, maintain the full normal output, with coke breeze exclusively as fuel, at 80 per cent. overall efficiency.

The Sandwich System of burning cheap coal slack and coke breeze is superimposed layers, which prevents the formation of smoke, has for many years been used successfully in several of the most important and efficient electric power stations.

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Sanitary Inspectors, Medical Officers of Health, Smoke Abatement Committees, and Local Authorities, are unanimously of the opinion that "Coalite" is a most satisfactory and efficient smokeless coal, and that *its national adoption will abolish the smoke evil.*

"Coalite" was awarded the Rogers Field Gold Medal at the Public Health Exhibition and Congress of the Royal Sanitary Institute held at Sheffield, July, 1929. The Rogers Field Gold Medal is the highest award of the Royal Sanitary Institute and is given only for products of pre-eminent merit from the point of view of national health.

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Low Temperature Carbonisation.

By Dr. Margaret Fishenden
(*of the Department of Scientific and Industrial Research*)

The carbonisation of coal at either high or low temperatures yields gas (from which some light hydro-carbons can be scrubbed), coke, tar and ammoniacal liquor. Whatever the process employed, a certain proportion of the heat value of the original coal is bound to be lost. Hence, if commercial success is to be achieved, the value of the products, because they can be used either more conveniently or with greater efficiency than raw coal, must be such as to make good this loss, in addition to covering overhead and labour costs and providing a reasonable return on the capital invested.

In the gas industry, as the name implies, gas is regarded as the main product for which there is a steady demand at such a price as to provide the necessary profits. There has thus been a continual endeavour to increase the yield of gas at the expense of the other products, and in up-to-date manufacture it represents about 25 per cent. of the thermal value of the coal carbonised saleable coke accounting for a further 45 per cent. and tar for 5 per cent. The coke and tar are sold in the best markets available, the proceeds helping to reduce the price of the gas.

The new process of low temperature carbonisation differs from gas manufacture in that it yields no product for which there is any considerable and steady market, and which is not at the same time in direct competition with some other product the price of which is quite independent of the industry itself.

Within the limits of this article the numerous designs of low temperature carbonisation plants which have been proposed obviously cannot be discussed in any detail, but it is important to note that the resulting products differ fundamentally according to whether the retorts are internally or externally heated.

In externally heated retorts a relatively small volume of very rich gas, generally the equivalent of some 10 to 12 per cent. of the heat value of the coal treated, is produced, together with about 14 cwt. of coke, representing a further 70 per cent. of the heat of the coal, and 16-20 gallons of oil.

In internally heated retorts, the smokeless fuel may contain a considerable proportion of fines and the calorific value of the gas is reduced, and its volume increased, by admixture with the heating medium. The oil yield is usally about the same as with external heating.

The additional proportion of volatile matter which is allowed to remain in low temperature smokeless fuels, as against ordinary gas coke, is, in high temperature processes of carbonisation, added to the gas yield at little extra labour or manufacturing costs. It thus commands the ordinary ruling price for gas, which, therm for therm, is much higher than that for coke. It is clear, therefore, that if the low temperature process is to compete economically with established methods, the diminished thermal return in gas must be met by an increased return in the price of gas, coke or tar, especially as the overhead costs are usually relatively heavy.

Most low temperature carbonisation processes are designed to yield either an improved solid fuel, or the maximum possible oil-producing tar and spirit, from the coal treated. In Great Britain the main object is the production of a smokeless, free-burning, solid fuel for domestic fires, and for the smaller industrial plants, and for this purpose the externally heated type of retort is usually the more suitable since a larger proportion of the coke is obtained in lump form ; it is unfortunately also as a rule the most expensive type of plant to erect and work.

Low temperature coke varies in nature and quality with the coal from which it is prepared as well as with the method of carbonisation, but if in suitable form it is an excellent fuel for the purposes referred to and should be able to command a price equal to, or even slightly higher than, that of good quality household coal. But were low temperature carbonisation to develop on such a scale as to become able to replace any large proportion of the 40 million tons of raw coal now used every year in this country for household purposes, the demand for household coal would be correspondingly diminished, and this might result in an increase in the price of suitable coal for carbonisation.

The price obtainable for the low temperature gas will depend upon local conditions ; if it can be used for town's supply, it will, on a thermal basis, be worth as much as gas manufactured by ordinary gas works practice, under similar conditions of demand, and this is probably the outlet which would afford the highest price. If, on the other hand, there is no remunerative outlet accessible for the gas, it may be used for heating the retorts, or for similar purposes, but in this case can be credited only with the price per therm equivalent to that of alternative fuels such as low grade coal, or coke breeze. Where the process is one that yields a low grade gas similar to a producer gas, the price obtainable is, at the most, equal to the cost of making producer gas by normal methods.

It follows from the facts set out above, that the price obtainable for every product of low temperature carbonisation depends upon the available markets and the cost of alternative fuels ; there is no product the price of which can be adjusted according to the costs of manufacture.

The various processes of low temperature carbonisation that have been developed yield different types of coke and gas ; some of them work successfully only with a somewhat limited range of coal, and most of them are better adapted to some coals than to others. It is therefore necessary to know, before any estimate can be made of the commercial chances of a process :—

(1) The type of coal available, and its price.

(2) The type of product for which there is a local market, and the prices obtainable.

(3) The type of plant that will yield the desired products from the available coal and in the most remunerative proportions.

(4) The costs of erecting and working the plant.

The above considerations are perfectly general ; their application differs greatly in different countries and in different parts of the same country. Where an improved solid fuel is the main consideration, the governing factors are the type and price of the available coal, and the type and price of the alternative fuel with which the improved product is to compete. Broadly speaking it may be said that those processes which produce a coke suitable for domestic purposes, and a gas suitable for distribution by a gas undertaking, are most suitable worked by, or in close co-operation with, a gas undertaking, as in this manner alone can the gas be disposed of to the best advantage, with the additional advantage of a local market for domestic coke, and in most cases, a selling organisation available for disposing of the coke.

The technical problems which hindered the earlier development of low temperature carbonisation have now been largely overcome, and at the present time there is taking place in various quarters a steady development of types of apparatus based on sound principles. Up to the present it has not been definitely proved that commercial success is obtainable on a really large scale, and indeed, the time has been too short for such positive proofs to be forthcoming. Many of the earlier plants, on the other hand, by their inability to survive, have demonstrated the difficulty of making a real profit. In this connection it is important to remember that the technical working of a plant is by no neams the only factor influencing its commercial prospects, but that these are affected also by local conditions, and are probably more closely dependent upon competent management than upon any other single factor.

From time to time careful consideration has been given by the Government Departments concerned, as to the best way to stimulate the development of low temperature processes in private hands ; and with this end in view the Director of Fuel Research was authorised some four years ago to test without charge such plant as had reached a certain stage of developemnt, and gave reasonable expectation of technical success in full scale working. Reports on the following eight plants have already been published by the Stationery Office under this scheme and in the main the technical claims of the promoters as to yields, etc., have been corroborated.

Low Temperature Carbonisation Limited	1924
Midland Coal Products Limited	1925
Fusion Process	1925
Freeman Low Temperature Continuous Retorts	1925
Crozier Retorts	1927
Maclaruin Retorts	1929
Babcock Low Temperature Carbonisation Plant	1930
Turner Retort	1930

Although the economic prospects of low temperature carbonisation must still be looked upon as somewhat uncertain, there is little doubt that the process is now definitely launched. Several large scale plants are already running, others are in process of erection, and reliable, commercial data should shortly be available. The different systems will stand or fall according to whether they can, or cannot, pay dividends from the results achieved in ordinary competitive working.

It is, however, possible that if the coke from low temperature carbonisation could be sold for 10s. a ton more than household coal, many of the processes already developed could be worked at an adequate profit. In such a case, of couse, the extra cost would fall on the few, and benefits would be so diffused as to have no apparent value to anyone, at any rate, until the use of smokeless fuel became fairly general. Whether in these circumstances its development could be hoped for is doubtful unless some form of pressure or special inducement could be brought to bear upon the consumer.

The chief hope for any considerable diminution of the domestic smoke nuisance within a reasonable time appears to lie in a properly co-ordinated use of solid smokeless fuels (including high temperature gas cokes), gas and electricity. It must, however, be remembered that the domestic consumption of raw coal in Great Britain, which, as already stated, amounts to about 40 million tons a year, is very high. Such a quantity of fuel cannot be replaced at a moment's notice ; if low temperature coke were to be the sole substitute the industry would have to be established on a scale far exceeding that of the present day gas industry. Actually, of course, the different processes will doubtless develop side by side, and due allowance must be made for the continued development of both gas and electricity for domestic purposes, even that relatively high cost. This indeed is desirable, since it allows of the various types of coal available being treated by the processes to which they are suited. But in the meantime it is inevitable that raw coal should continue to be burned in considerable quantities and every reasonable care should be taken to ensure that this is utilised with the highest possible efficiency and with a minimum production of smoke and dirt.

Oil.

Oil as a medium for smokeless heating is frequently not considered to the extent that it deserves, but it is playing a useful part in smoke abatement. In addition to the oil engine it is used as a fuel in boilers, being atomised through a fine jet into a fine division of particles, which gives complete and rapid combustion. A black and dense smoke is sometimes produced, but the degree of control available with well designed apparatus renders this avoidable.

Oil fired furnaces are largely used in central heating installations both in large buildings and private houses. Great cleanliness and simplicity in working are obtainable, and an automatic thermostatically controlled feed may be used, with the result that personal attention over long periods may be practically completely eliminated. The portable oil stove is used to a large extent, not only in areas where gas and electricity are unobtainable, but in houses where these mediums are also used. The oil cooker, like the modern stove, has been developed into a very efficient appliance, and, of course, finds its greater scope in rural areas.

The Cost of Smoke.

It is quite impossible to obtain any definite figures for the monetary cost of coal smoke to the nation, but approximate estimates, almost certainly erring on the low side, can be worked out, and are a useful means for emphasising the extent and seriousness of the nuisance for popular exposition. The most reliable estimate is that given by Shaw and Owens in " The Smoke Problem of Great Cities," upon which the following figures have been worked out, using the latest available sootfall figures and making allowance for the present level of prices and costs. It must be noted that no attempt is made to account for the large financial loss which results from disease and ill-health aggravated by smoke ; nor again, for the loss due to smoke fogs. The total cost to the nation is in the region of £80,000,000 a year. This is equivalent to a capital sum far in excess of the total of the external national debt.

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Estimated Cost of Smoke to Various Towns

	Cost in £
Birmingham	2,350,000
Burnley	323,000
Cardiff	300,000
Edinburgh	567,000
Glasgow	1,809,000
Gloucester	39,000
Huddersfield	270,000
Kingston-upon-Hull	625,000
Leeds	893,000
Leicester	480,000
Liverpool	2,308,000
London	6,815,000
Loughborough	48,000
Manchester	2,900,000
Newcastle-upon-Tyne	750,000
Rochdale	198,000
Rotherham	200,000
St. Helens	255,000
Salford	434,000
Sheffield	1,277,000
Southport	67,000
Stoke-upon-Trent	441,000
Wakefield	71,000
Wrexham	22,000

The History of Smoke; A Chronological Table.

A.D.

852 First records of the use of coal.

1228 Record of "Sacoles Lane" (Sea-coals) in London.

1257 Eleanor, Queen of Henry III left Nottingham on account of the smoke nuisance.

1273 Use of coal prohibited in London as being "prejudical to health."

1306 Royal Proclamation prohibiting artificers from using sea-coal in their furnaces. Record of a man being executed for disobeying this command.

1307 Commission of Inquiry appointed to "inquire of all such who burnt sea coal in the city or parts adjoining, and to punish them for the first attempt with great fines and ransoms and upon the second offence to demolish their furnaces."

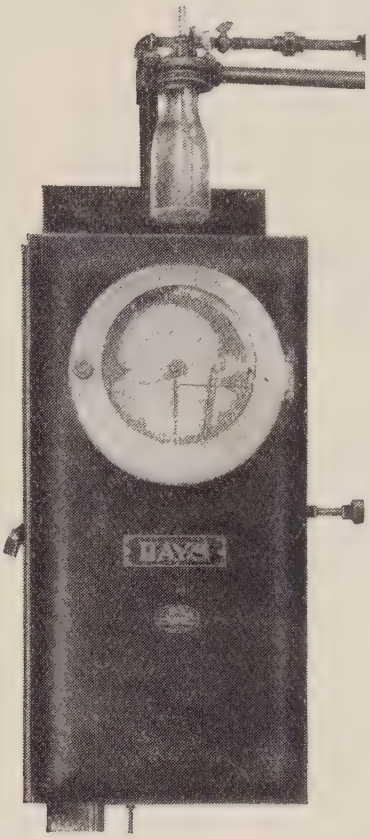
1563 Scarcity of wood fuel led to an Act prohibiting the export of wood. Consequent expansion of the coal trade.

1578 Queen Elizabeth "findeth hersealfe greately greved and anoyed with the taste and smoke of the sea-cooles." Elizabeth, James I., and Charles I. all imposed export duties on coal.

1648 Petition of Londoners to Parliament to prohibit the importation of coal from Newcastle on account of the injury they experienced.

1661 Publication of "Fumifugium, or the Smoake of London Dissipated" by John Evelyn.

1819 Committee appointed by Parliament to inquire how far persons using steam engines and furnaces could erect them in a manner less prejudical to public health and comfort.



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PARTIAL BOARD 11/- „ } *three days*

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DINNER 3/6

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1843 A Select Committee recommended the introduction of a Bill dealing with nuisances from furnaces and steam engines.
1845 Another select committee reports that it is not desirable to extend the provisions of an Act beyond furnaces used for steam generation.
1845 Railway Clauses Consolidation Act required locomotive steam engines to be so constructed as to consume their own smoke.
1847 The Towns Improvement Clauses Act contained a section dealing with factory smoke.
1853-56 Smoke Abatement Acts dealing with the Metropolitan area.
1866 The Sanitary Act empowered sanitary authorities to take action in cases of smoke nuisances.
1875 The Public Health Act, upon which existing legislation is mainly based.
1881 Formation of a smoke abatement committee as a result of a movement started by the Kyrle Society and the National Health Society.
1887 Failure of the Smoke Abatement (Metropolis) Bill in the House of Lords.
1891 The Public Health (London) Act.
1899 Formation of the Coal Smoke Abatement Society.
1909 Smoke Abatement Exhibition at Sheffield, followed by the formation of the Smoke Abatement League of Great Britain.
1912 International Smoke Abatement Exhibition, London, under the auspices of the Coal Smoke Abatement Society, followed by the formation of the Committee for the Investigation of Atmospheric Pollution (now under the Department of Scientific and Industrial Research.
1913 Introduction of a smoke abatement Bill in the House of Commons by Mr. A. G. C. Harvey, M.P.
1914 Introduction of a smoke abatement Bill in the House of Lords by Lord Newton. The Bill was withdrawn upon the appointment of a Departmental Committee to investigate the question.
1920 Committee re-constituted after the war, with Lord Newton as Chairman.
1921 Publication of the Final Report of the Committee.
1926 Public Health (Smoke Abatement) Act, by which the 1875 and 1891 Acts are extended and amended.
1927 Formation of Regional Smoke Abatement Committees by Municipalities in the West Riding of Yorkshire, Manchester District, and Midlands. Formation of Sheffield and Rotherham Joint Statutory Committee.
1929 Amalgamation of the Coal Smoke Abatement Society and the Smoke Abatement League of Great Britain to form the National Smoke Abatement Society. Publication of first journal devoted to smoke abatement and air pollution.

Principal Books on Smoke Abatement.

The Smoke Problem of Great Cities, Shaw and Owens (Constable).
Smoke Inspectors' Handbook. Clinch (Lewis).
Smoke, Cohen and Ruston (Arnold).
Smoke Abatement, Nicholson (Griffin).
Home Fires without Smoke, Elliott and Fitzgerald (Benn).
Coal and its Scientific Uses, Bone (Longman).
Health and Environment, Hill and Campbell (Arnold).
Sunshine and Open Air, Hill (Arnold).
Sunlight and Health, Saleeby (Nisbet).
Report of the Departmental Commission on Smoke and Noxious Vapours Abatement, 1921 (Out of print).

(Smoke abatement is, of course, dealt with in many other works, and the technical aspects of smoke prevention, smokeless fuels, etc., are found in numerous books, papers and articles, which it would be impossible to list. The National Smoke Abatement Society will, however always be pleased to assist or advise persons requiring specific information).

Directory of Associations.

British Commercial Gas Association, 28, Grosvenor Gardens, London, S.W.1.
British Dental Association (Professional), 23, Russell Square, London, W.C.1.
British Electrical Development Association, Inc., 15, Savoy Street, London, W.C.2.
British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Central Council for Health Education, 1, Upper Montague Street, London, W.C.1.
Do. Health Propaganda Room, London School of Hygiene and Tropical Medicine, Keppel St.
Chemical Industry Society of, 46-47, Finsbury Square, London, E.C.2.
Chemical Society, Burlington House, Piccadilly, London, W.1.
Civil Engineers, Institution of, Great George St., London, S.W.1.
Coke Oven Managers' Association (P. B. Nicholson, J.P., Hon. Sec., Wath-upon-Dearne).

Electrical Engineers, Institution of, Savoy Place, Victoria Embankment, W.C.2.

Fuel, Institute of, 53, Victoria Street, London, S.W.1.
Fuel Research Board, see Dpt. of Scientific and Industrial Research.

Garden Cities and Town Planning Association, 3, Gray's Inn Place, W.C.1.
Greater London Joint Smoke Abatement Comm., Lambeth Town Hall, Brixton Hill, S.W.2.

Health and Cleanliness Council, 5, Tavistock Square, London, W.C.1.
Heating and Ventilating Engineers, Institution of, 12, Russell Square, W.C.1.
Hygiene, Institute of, 28, Portland Place, W.1.
Huddersfield Smoke Abatement Council, 24, Cleveland Road, Huddersfield.

London and Counties Coke Association 9, Grosvenor Gardens, London, S.W.1.

Manchester and District Regional Smoke Abatement Committee, Civic Buildings, Mount Street, Manchester.
Mechanical Engineers, Institution of, Inc. by Royal Charter, Storey's Gate, London, S.W.1.
Medical Officers of Health, Society of, 49, Cromwell Road, London, S.W.7.
Midlands Joint Advisory Council for Smoke Abatement, c/o Public Health Dept., Birmingham.

National Association for the Prevention of Tuberculosis, 1, Gordon Sq., London, W.C.1.
National Gas Council for Great Britain and Ireland, 28, Grosvenor Gd., London, S.W.1.
National Housing and Town Planning council, 41, Russell Square, London, W.C.1.
National Smoke Abatement Society, Central Office: 23, King Street, Manchester.
London Office: 71, Eccleston Square, S.W.1.
Scottish Branch: City Chambers, Glasgow.
Manchester Branch: 3, St. James's Square.

People's League of Health, 12, Stratford Place, W.1.

Royal Institute of British Architects, 9, Conduit Street, London, W.1.
Royal Meteorological Society, 49, Cromwell Road, S.W.7.
Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.1.

Sanitary Engineers, Institution of, 120-122, Victoria Street, S.W.1.
Sanitary Inspectors' Association, 27a, Moreton Street, London, S.W.1.
Scientific and Industrial Research Dept of,, 16, Old Queen Street, S.W.1.
Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield.
Sunlight League, 29, Gordon Square, London, W.C.1.

West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Dept, Leeds.

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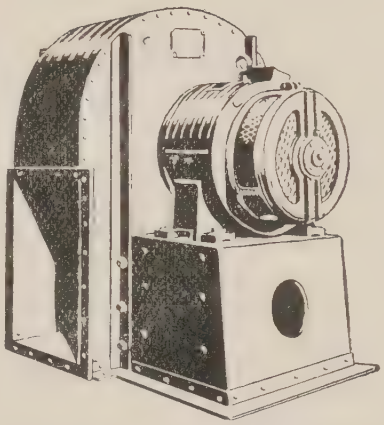
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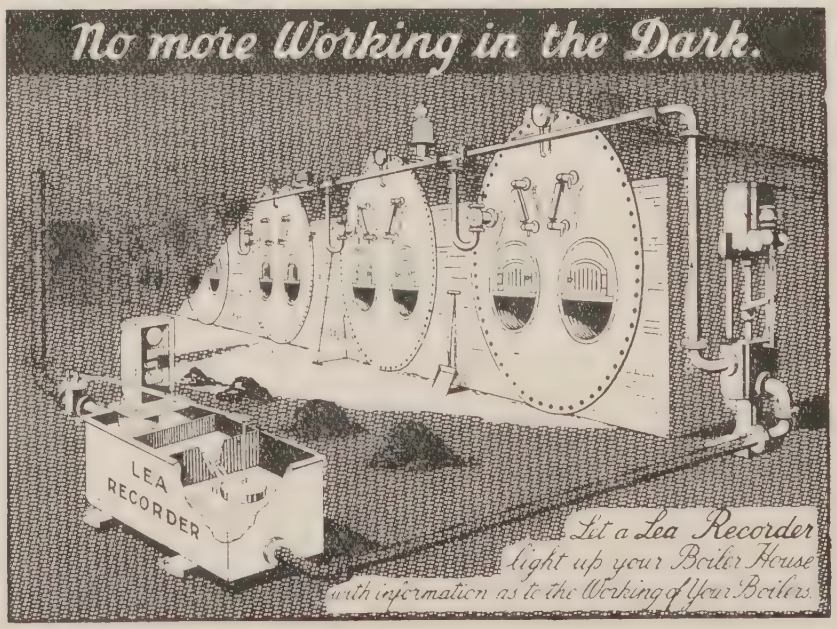
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Institution of Gas Engineers—Charles F. Botley ; Edwin H. Hudson.
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Arnold Marsh. *General Secretary.*

General Information about the National Smoke Abatement Society.

Membership.

Membership is open to all individuals on payment of an annual subscription of at least 10/6, and to commercial undertakings at a minimum of one guinea. Local Authorities, non-commercial societies and institutions may become affiliated members of the Society at a minimum subscription of one guinea, and may appoint two representatives to serve upon the Council of the Society. Members receive the quarterly Journal of the Society free of charge. There is also an Associate membership for individuals at a subscription of 5/-, which does not include the receipt of the Journal.

The Journal.

Is published quarterly, and is free to members. The annual subscription otherwise is 2/6 per annum, post free. Single copies are priced one shilling. The Editor will welcome suitable contributions and items of news and general interest. No payment is usually made for such contributions.

Lantern Slides.

The Society possesses a large collection of lantern slides dealing with the subject, which may be hired at the price of 1d. per slide plus postage. A list may be obtained upon application. New slides from organisations or illustrations of processes and appliances, etc., would be received with thanks.

Information.

The Society is always prepared to supply relevant information to members wherever possible, and to give advice and assistance on smoke abatement problems as far as its circumstances will permit.

Exhibitions.

The Society is prepared to loan exhibition material to any bodies arranging Health or similar exhibitions, and will be pleased to receive invitations to take a stand at such exhibitions.

Literature and Posters.

Literature for sale or distribution can be supplied at a low cost, and posters bearing suitable slogans can also be obtained.

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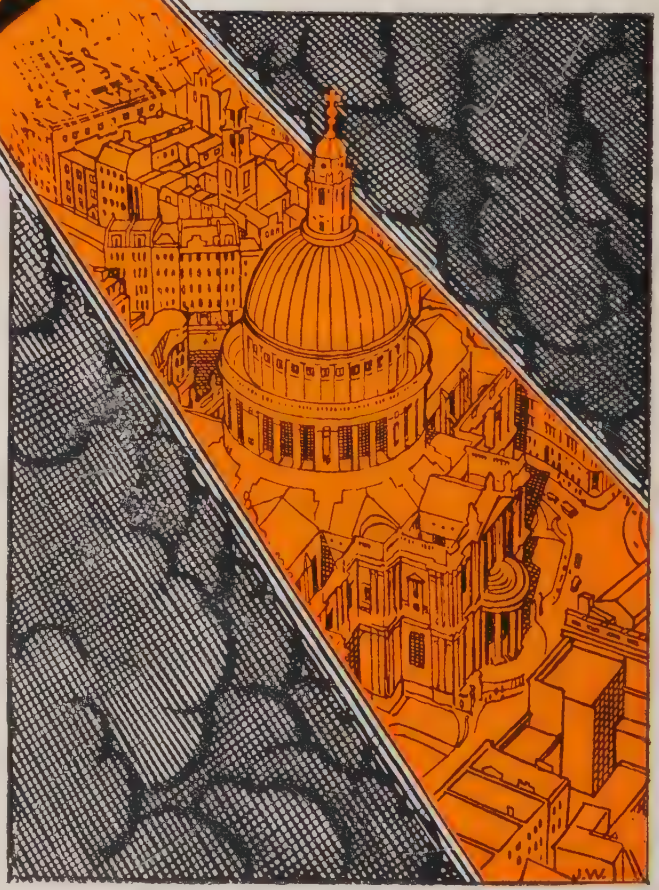
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NATIONAL SMOKE ABATEMENT SOCIETY 1947

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SERVICES * 17th ANNUAL REPORT (1946) SUBSCRIPTIONS * ACCOUNTS * PUBLICATIONS

Recent Publications of the Society

Proceedings of the Brighton Conference, 1946. A full record of Papers and Discussions. The principal subjects covered are Smoke Prevention in New Houses, Proposals for New Industrial Legislation, and " What of the Future ? " 84 pages, 2/-.

Industrial Smoke Prevention. First draft of the Society's proposals for new legislation (Prior Approval, etc.). 8 pages, 3d.

Constitution. The new constitution of the Society in booklet form. 8 pages, 2d.

Smokeless Zones. A booklet explaining the Society's proposals for ending the smoke nuisance by the setting up of smokeless zones. 3d.

February 1945 Joint Conference. Report of the joint conference with the Institute of Fuel, London, 23rd February, 1945. 8 papers and discussions, 45,000 words. 2/6.

Domestic Fuel Efficiency and Smoke Prevention. Report of joint conference with the N.W. Section, Institute of Fuel, Manchester, 14th November, 1945. Papers by Dr. G. E. Foxwell, Charles Gandy and Arnold Marsh, and discussion. 1/-.

Smoke Control. Suggestions to Local Authorities on Guidance and Control in respect to new Fuel Burning Installations. 8 pages, 3d.

The Smoke Problem and Science Teaching. A booklet for teachers, with notes and experiments. 8 pages, 3d.

No Clean City. An illustrated pamphlet showing the need for smoke prevention in post-war reconstruction. 16 pages, 2d.

Plan for Clean Air. An easily read outline of the Society's proposals and " Ten Year Plan " in the form of a " quiz " of twenty questions and answers. A useful publication to hand to the uninformed. 8 pages, 2d.

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National Smoke Abatement Society

1947

Contents

	Page
Officers	2
Vice-Presidents	2
Elected Members of the Council	2
Local Authority Members	3
Divisional Councils	4
17th Annual Report, for 1946	5
Note to Non-Members	9
Accounts for year ended 30th June, 1946 ..	10
Subscriptions and Donations	11
Information about the Society	17
Services to Members	19
The Covenant Subscription Scheme ..	20
Publications of the Society ..	*Inside covers*

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Hon. Secretary: John Traill, B.L.

Secretary's Office: City Chambers, Glasgow.

Central 9600
Ext. 220

North West Divisional Council

Chairman: Alderman T. Halstead, J.P.

Hon. Secretary: H. Moore

Secretary's Office: Public Health Dept., Town Hall, Manchester.

Central 3377
Ext. 339

Seventeenth Annual Report

for the Year ended 31st December, 1946

GENERAL REVIEW

The year 1946 has been of outstanding importance in the campaign for clean air. It has seen the first legislation for smokeless zones and for the prior approval of new fuel-burning installations, and on the domestic side has been marked by the general acceptance by the Government of a fuel policy that includes, on lines closely following the Society's own proposals, the progressive abolition of smoke. The Society itself can also report a further year of all-round progress and the successful beginning of work under its new constitution.

Domestic Fuel Policy

The Fuel and Power Advisory Council of the Ministry of Fuel and Power, under the Chairmanship of Sir Ernest Simon (a Vice-President of the Society), issued its report on *Domestic Fuel Policy* early in the year. One of the terms of reference of the Council was to consider the abatement of smoke from household fires, and in its recommendations this factor is integrated into the general policy in an entirely satisfactory way. The fact that the recommendations should so closely follow the policy that had been developed and pressed for by the Society is a gratifying tribute to the latter's practical understanding of the problems involved. The Report, published by H.M. Stationery Office, was reviewed in SMOKELESS AIR (Spring, 1946, No. 60).

Preceding this important report was the more technical *Heating and Ventilation of Dwellings*, a report of a Committee of the Building Research Board, under the chairmanship of Sir Alfred Egerton, which also stressed the importance of smoke prevention, and included an informative appendix on Atmospheric Pollution. As a result of these reports the Government has accepted a policy that includes the progressive substitution of the coal-burning open fire by improved fires and stoves suitable for smokeless fuel. Production of these new appliances is still not sufficient for even all the new houses, although it is stated that this will be remedied during 1947, which will make it possible for the Society to press for the implementation of the Simon Report recommendations, that the installation of improved appliances in new houses should be a condition of subsidy, and will also make it practicable to propose a beginning of the replacement of old by new appliances in existing houses—starting preferably in areas to become smokeless zones.

The present difficult fuel situation, and the time that must elapse before the production of solid smokeless fuel can be sufficiently expanded makes it impossible to urge early measures to ensure the use of smokeless fuel in the new appliances, but it is satisfactory to note that it has been authoritatively stated that a progressive increase in smokeless fuel production will be one of the foremost tasks of the National Coal Board. It is also satisfactory to note that an Interdepartmental Committee for Domestic Heating of the Ministries concerned—Health, Fuel and Power, Works and Supply—has been set up.

It may be emphasized that the Society's concern in recent years with solid fuel appliances does not in any way lessen its interest in other forms of smokeless heating, particularly the public utilities of gas, electricity and district heating. The open coal fire remains, however, the hard kernel of the problem, and can remain, with a consequent continuation of the smoke nuisance, in houses generously provided with the public utility services. The latter are smokeless in any case, but the open fire is smokeless only if it is made suitable for, and actually uses, smokeless fuel. As between the public utility systems themselves, the Society remains completely unbiased, because each can promote smokelessness. Debate on their relative merits and comparisons of their technical and economic features is naturally of interest, but does not affect the common factor of smokeless-

ness, with which the Society is solely concerned.

Industrial Smoke

Because of the scarcity of fuel, which results in poor quality or unsuitable coal being used in many industrial plants, leading to forcing of boilers and other faults, together with a widespread need for plant replacements and extensions, there has been a tendency for industrial smoke emissions to increase. This has perhaps been offset in the aggregate by the continued drive for fuel efficiency, but there does appear to have been an increased number of complaints about specific nuisances. It is particularly regrettable that these should include a number of complaints about pollution said to be due to the manufacture of smokeless mediums—at gas and other carbonizing plant and electricity generating stations. Our friends in these industries will appreciate our anxiety about the existence of complaints from the processes supplying the means for smokelessness.

An easing of the fuel supply situation, and the provision of new plant and equipment where it is needed, will make possible, from the smoke prevention viewpoint, the fuller fruition of the fuel efficiency campaign of the Ministry of Fuel and Power. The big " Fuel and the Future " conference in London in October was an event of importance for the future progress of fuel efficiency and less smoke. Also of considerable value to smoke prevention has been the excellent *Stoker's Manual* published during the year by the Ministry.

New Legislation

Two of the main features of the Society's policy, both of which have been developed only during the last few years, are now to be found on the statute book ; namely, the smokeless zone and prior approval principles. To set up smokeless zones, not only in the centre but in other parts of the city, and to require the prior approval of all new steam-raising and other industrial or trade installations are important sections of the Manchester (General Powers) Act, 1946, and powers to make byelaws for the prior approval of new installations are included in the City of London Act, 1946. Both Acts are described in some detail in SMOKELESS AIR (Autumn-Winter, 1946, No. 62). The importance of these Acts to the Society, if only for the precedents they create, needs no emphasis.

An interesting development in planning for smokelessness is the setting up in Bristol of a co-ordinating Smoke Prevention Committee of all the interested Committees of the City Council. In Sheffield the Society's suggestion in *Smoke Control* has been acted upon by including a smoke control clause in all leases of Corporation-owned land to be used for industrial purposes.

Regional Committees

The Regional Committees for Northumberland and Durham, and West Lancashire and Cheshire have not yet resumed operations after their war-time suspension. Elsewhere the Regional Committees are usefully developing their activities—that is, the West Riding of Yorkshire, Manchester and District, the Midlands, Bristol and District, and Greater London. The Society is in most friendly relations with all of the Committees and values their work as a complement to its own.

THE SOCIETY

The New Constitution

The adoption of a new, and more ambitious constitution in October, 1945, has been an unqualified success. The new system of nominations and ballot for the Executive Council by Divisions has resulted in the formation of a strong Council in which each part of the country is represented. The increase in subscriptions for many Corporate, Institution and Local Authority Members met with a gratifying response, and all but 32 local authorities (who, however, continue to make an annual donation) out of a total of 217 have agreed to subscribe on the new scale. 72 out of 202 Corporate and Institution subscribers are full members.

Although the area Divisions already exist for electoral purposes, only two Divisional Councils have so far been set up. One is the Executive Committee of the former Scottish Branch, and the other the North West Divisional Council, which takes the place of, though covering a wider area than, the former North West Branch, the members of which have become members of the National Society. It is hoped that Councils will be set up

in other Divisions in the near future.

As its first President under the new constitution the Society is fortunate in having Sir George Elliston. Sir George is Chairman of the Public Health Committee of the Common Council of the City of London and Editor of "The Medical Officer." He was formerly a Member of Parliament and secretary of the Society of Medical Officers. His support and advice have already been of great value, and those who were present will have appreciated his Presidential Address at the Brighton Conference.

Will Melland, our previous President, was designated Past President, and so his long association as an office bearer of the Society remains unbroken, despite the ill-health that so regrettably now debars him from active participation in our work.

Annual Meetings

An annual general meeting was held in London on 21st March, 1946, for the purpose of receiving the Annual Report for 1945, the statement of accounts and the results of the elections for President, Hon. Treasurer and Executive Council. The election of Vice-Presidents, which under the new constitution was to be carried out by nomination and election by those present and voting at the Annual General Meeting, proved to be difficult, and the election was delegated to the Executive Council. The names of those duly elected are given on the second page of this report. The method of election of Vice-Presidents was subsequently considered by the Executive Council, and at a Special General Meeting held at Brighton on 24th October an amendment to the constitution was adopted by which Vice-Presidents shall be nominated and elected by post, under procedure similar to that laid down for the other Officers.

Annual Conference

The first full scale Annual Conference since that held in Cardiff in 1938 took place at Brighton from 24th to 26th October. Its success was shown by a record attendance of 409, and by the fact that the proceedings received a greater number of Press reports than any other event organized by the Society. Over 200 local authorities were represented, including 76 who were non-members. The Society was privileged to receive a most encouraging message from the Lord President of the Council, the Rt. Hon. Herbert Morrison, M.P., who regretted that he could not be present and referred to the Society's work as being of the highest national importance.

The programme consisted of three main sessions, as follows. (1) *New Housing*: this took the form of reports, based on the replies to a questionnaire to local authorities, prepared and presented by each of the Regional Committees or, in other areas, by representatives of the Society. (2) *Industrial Smoke*: papers from different viewpoints were read on the proposals for new legislation formulated by the Society. (3) *The Future*: a general discussion on the lines on which progress should be attempted, opened with a paper by Mr. Gandy. A series of resolutions was passed at the end of the conference.

The success of the event was enhanced by the hospitality of the Brighton Corporation, which kindly put the whole of the Royal Pavilion at the disposal of the Society. There was a civic welcome by His Worship the Mayor of Brighton, and an evening reception given by the Mayor and Mayoress. A reception by invitation of the President and Council was also given.

Other Meetings

On 25th February a successful joint meeting with the Yorkshire section of the Institute of Fuel was held at Doncaster, at which papers were read on the domestic problem, industrial smoke, and that from metallurgical processes. A joint meeting was held at Nottingham with the East Midland section of the Institute of Fuel on 16th May at which a paper on the prevention of industrial smoke was discussed. On 28th November there was a joint meeting with the Liverpool section of the Institute and the Merseyside Civic Society in Liverpool, at which the domestic problem was discussed. The Annual Meeting of the Scottish Branch took place in Edinburgh on 14th May, and at a meeting of members of the North West Division in Manchester on 18th July a Divisional Council for the area was elected.

Obituary

We regret to record the death, on 12th August, of R. H. Clayton, of Manchester, one of the Society's oldest and most active members. He was until recently a member of the Executive Committee and had been interested in smoke abatement for forty years or more. A fuller tribute to Mr. Clayton appeared in SMOKELESS AIR (Summer, 1946, No. 61).

Council and Committees

The new Executive Council of 33 members, drawn from each of the Society's Divisions in proportion to the membership of each, was elected in March and met three times between then and the end of the year. Mr. Charles Gandy was elected Chairman, and Mr. J. W. Beaumont Deputy Chairman. As required by the new constitution three Committees have been set up, as follows : General Purposes and Finance, with Mr. Gandy as Chairman ; Publicity, with Mr. John Gurney as Chairman ; and Technical, with Dr. R. Lessing as Chairman.

Proposals for New Legislation

After a period during which the domestic problem has received primary attention the chief development in policy has been the publication of provisional proposals for new legislation to control industrial smoke. These proposals are for an extension of the Public Health Act, 1936, to permit byelaws requiring the prior approval of new fuel-burning plant, control over the maintenance and operation of existing plant, and the registration of firemen operating plant from which smoke emission is possible. These were discussed at Brighton and received general approval, although with some reservations on the question of the registration of firemen. The original draft is being re-examined by the Technical Committee, with a view to revision and subsequent discussion with other interested bodies.

Exhibitions

By invitation of the Solid Smokeless Fuels Federation the Society took part in a large and comprehensive " Good Heating for Every Home " exhibition in the Royal Horticultural Hall, Westminster, in March. The Society's stand attracted much attention and the exhibition did a great deal to demonstrate and make known the considerable developments that have taken place in appliances for the use of solid smokeless fuel in the home.

Exhibition material has been loaned for smoke abatement stands during the year for Local Government and other exhibitions in Farnborough, Hull, Barrow, Accrington, Darlaston, Wrexham, Retford, Stretford, Edinburgh, Bradford, Sidcup, Sunderland, Huddersfield, Luton, Islington and St. Albans. There is considerable scope for extending this service, limited at present by the small amount of material available and by shortage of staff. This field of propaganda is being examined by the Publicity Committee.

Services

Exhibition work may be regarded as one of the " services " offered to members and others. The growing interest in smoke prevention is increasing the demand for the services of the Society in other respects, including general and technical information, publications, assistance to journalists, other writers, and lecturers, advice on smoke nuisance cases, loans of photographs, and so on. The principal difficulty arising from the growth of this work, which emphasizes how much the Society is becoming, among other things, a sort of central bureau of information on smoke abatement and allied matters, is the time diverted from other activities at headquarters. With a larger staff, which can only be secured when a substantially larger income is assured, the Society's services could be expanded very considerably.

Publications

It has not been possible, owing to pressure of other work, to issue any new publications since *Smoke Problem and Science Teaching*, to which reference was made in the last annual report, with the exception of *Industrial Smoke Prevention*, containing the provisional proposals for new legislation already referred to, and, of course, SMOKELESS AIR. An increased paper allowance for the latter will make it possible to revert to four issues during the year 1947, instead of the three that have been issued during each of the last three years. *The Proceedings of the Brighton Conference*, 1946, will have appeared before the publication of the present report, and will be seen to be a substantial volume of papers and discussions.

Local educational authorities were approached with respect to the sale and distribution among teachers of the *Science Teaching* pamphlet. This has resulted in a sales and free distribution amounting to 4,250 copies to date. It is believed, judging by the interest that is apparent, that the projected *Health and Home Teaching and the Smoke Problem* will be equally or even more successful. This is one of several publications to be prepared and issued as soon as possible.

Speakers' Panel

A new Panel of Speakers on smoke and related problems is now in preparation and will be issued as a folder and distributed among organizations likely to be interested. Members and Representatives who feel they are qualified to speak at meetings—even if only to give informal talks at small local meetings—are invited to inform the Secretary. Inclusion in the panel does not, of course, involve any obligation to accept any particular invitation to speak. Notes for the assistance of speakers are also to be issued.

Membership and Finance

The annual statement of accounts and balance sheet, which follow, will show that the Society's income and financial position have continued to improve, and a further small increase from present membership because of the new constitution can be anticipated. Expenditure is, however, also increasing, partly as a result of increased office rent and new and augmented salaries, and partly because of the steady expansion of general activity. Activities in fact show a continued tendency to expand more rapidly than can efficiently be undertaken. The only remedy is, of course, an increase in income to make possible a larger staff and material resources.

A proportion of the available resources must therefore be diverted to appeals for membership. At the end of the year under review a drive was begun to secure the membership of further local authorities, and this will be followed by other appeals.

Staff and Office

In January last the staff was augmented by the engagement of Mr. V. Silver, who had recently been demobilized, with the rank of Captain, from the Army, in a new post of organizing assistant, and in October Mrs. E. E. Snelgrove was appointed to fill a vacancy as secretarial assistant and accountant. A junior assistant, Miss J. Burt, was appointed last year. With the general secretary there is thus a headquarters staff of four.

The work undertaken at headquarters may be divided into the following departments: (1) General administration and Accounts, including conference organisation; (2) Editorial, including SMOKELESS AIR; (3) Council and Committees; (4) Intelligence, including library and information records; (5) Services; and (6) Special publicity, appeals and other activities. The first three are normally given priority, the fourth is in urgent need of reorganization and development, while the last two are undertaken as far as practicable, which at present amounts to very little compared with what might and should be done. This indication of the scope of the work being attempted is given so that members may appreciate the anxiety of the Officers and Council to see developments in the Society's material position comparable with the important developments in the general situation that are recorded in the first part of this report.

CHARLES GANDY, *Chairman of Council.*
LAWRENCE CHUBB, *Hon. Treasurer.*
ARNOLD MARSH, *General Secretary.*

January, 1947.

If you are not a Member . . .

we are sure you will agree that the above Report proves the usefulness of the Society and the need it has for more support. If a Membership application form is enclosed we invite you to complete and return it to the Society. Particulars of subscriptions, etc., are given on pages 17 and 18. Or, without any obligation, send a postcard to the Society asking for more information about the campaign for smoke-free air and specimen copies of publications.

Income and Expenditure Account, Year ended June 30th, 1946

1945 £ s. d.	Income	1946 £ s. d.
2,220 10 0	Subscriptions and Donations	2,713 4 6
30 16 8	Sale of Literature	78 13 9
—	Repayment of Income Tax	42 13 3
143 17 0	Conference Fees	54 12 0
	Dividends from Investments, etc.—	
4 10 10	Commercial Union Assurance Co.	5 1 6
9 7 9	London, Midland & Scottish Rly. Co.	6 11 5
	(1½ years)	
11 9 10	*Interest*—Manchester & Salford Savings Bank	11 8 11
—	Post Office Savings Bank	5 4 2
10 6	Sundry Receipts	3 12 0
£2,421 2 7		£2,921 1 6

1945 £ s. d.	Expenditure	1946 £ s. d.
998 5 10	Salaries and Fees	1,337 6 4
199 19 0	Rent, Rates, Lighting and Heating	265 9 2
251 17 5	Printing and Stationery	322 5 4
37 17 8	Travelling Expenses	70 13 5
170 1 5	General Expenses, Postages and Telephone	307 15 0
	Printing *Smokeless Air*—	
71 7 5	*Less* Receipts from Advertisements	137 16 11
—	Printing Booklets *The Smoke Problem and Science Teaching*	75 9 3
50 0 0	Staff Pension Scheme	50 0 0
—	Furniture and Fittings	65 11 2
641 13 10	Surplus of Income over Expenditure	288 14 11
£2,421 2 7		£2,921 1 6

Defence Bond Fund

£ s. d.		£ s. d.
457 19 9	Balance June 30th, 1945	471 12 7
13 12 10	Interest	14 1 8
£471 12 7		£485 14 3

£ s. d.		£ s. d.
471 12 7	Balance June 30th, 1946	485 14 3
471 12 7		£485 14 3

Balance Sheet, June 30th, 1946

£ s. d.		£ s. d.	£ s. d.
	Surplus—		
1,402 1 0	Balance as at June 30th, 1945	2,043 14 10	
641 13 10	*Add* Surplus of Income over Expenditure	288 14 11	
2,043 14 10			2,332 9 9
	Defence Bond Fund—		
471 12 7	Balance		485 14 3
£2,515 7 5			£2,818 4 0

£ s. d.		£ s. d.	£ s. d.
	Investments (General)—		
	Commercial Union Assurance Co.—		
205 11 0	£25 Stock at Cost	205 11 0	
	London Midland & Scottish Railway—		
279 5 11	£313 4% Deb. Stock at Cost	279 5 11	
	Manchester & Salford Savings Bank—		
444 19 9	Deposit	456 8 8	
	Post Office Savings Bank—		
—	Deposit	505 4 2	
			1,446 9 9
1,103 18 2	Cash at Bank and in Hand (General)		876 0 0
	Defence Bond Fund—		
470 0 0	3% Defence Bonds	480 0 0	
1 12 7	Cash in Hand	5 14 3	
			485 14 3
10 0 0	Electricity Deposit		10 0 0
£2,515 7 5			£2,818 4 0

Audited and found correct.

(*Signed*) ABBOTT & SON, Chartered Accountants,
40, South King Street, Manchester, 2.

4th October, 1946.

Subscriptions and Donations

for the Year ended 30th June, 1946

* Denotes Covenant Subscriber

Division 1—Scotland

	£	s.	d.
Airdrie Corporation	3	3	0
Clydebank Corporation ...	3	3	0
Coatbridge Corporation ...	3	3	0
Dumbarton Corporation ...	2	2	0
Dunbarton County Council ...	4	4	0
Dundee Corporation ...	10	10	0
Falconer, Mrs. J.	0	10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd. ...	0	10	6
Glasgow Corporation ...	26	5	0
Glasgow Corporation Gas Dept.	5	5	0
Glasgow Women's Citizen Assn.	1	1	0
Grattidge, H. H.	0	5	0
Greenock Corporation ...	5	5	0
Hamilton Corporation ...	3	3	0
Heriot-Wade College ...	1	1	0
Howden, J. & Co. Ltd. ...	10	10	0
Jewell, Mrs. K. I.	0	10	6
Johnstone Corporation ...	2	2	0
Kirkintilloch Corporation ...	2	2	0
Lanark County Council ...	15	15	0
Macmillan, A. M.	2	2	0
Mill, Dr. L. M. D.	1	0	0
Millar, A. W.	0	5	0
Motherwell & Wishaw Corporation	4	4	0
Paisley Corporation	5	5	0
Renfrew Corporation ...	2	2	0
Renfrew County Council ...	10	10	0
Ritchie, G. B.	0	10	6
Rothesay Corporation ...	2	2	0
Royal Sanitary Assn. of Scotland	1	1	0
Scott Park, Dr. and Mrs. S. D.	0	10	6
Scottish Junior Gas Assn. ...	1	1	0
Smith, Mrs. J.	0	10	6
Smith, Wm. B.	2	2	0
*Stead, G. W.	10	0	0

Division 2-Northern Ireland

Jackson, C. L.	0	10	6
Young, Miss A. C.	0	10	0

Division 3—North-West

Accrington High School for Girls, Scientific Society ...	0	10	6
Affleck & Brown Ltd. ...	2	2	0
*Aitkenhead, Miss M. ...	0	15	6
Altrincham Gas Co.	2	2	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous	1	0	0
Ashton Bros. & Co., Ltd. ...	2	2	0
Ashton Gas Co.	3	3	0
Ashton-under-Lyne Electricity Dept.	2	2	0
Ashworth, Dr. J. R. ...	0	10	6
Barash, Dr. M.	0	10	6
Baxendale & Co. Ltd. ...	2	2	0
Beard, E.	1	1	0
Beard, J. D. R.	0	10	6
Beattie, E. & F. Ltd. ...	1	1	0
Behrens, A.	0	10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd. ...	10	10	0
Birkenhead Corporation ...	2	2	0
Blackburn Corporation ...	1	1	0
Bolton Corporation	13	13	0
Bootle Corporation	4	4	0
Briggs, C. Rawdon	0	15	0
British Insulated Cables Ltd.	5	5	0
Brookes, T. H.	0	10	6
Brown, Mrs. J. H.	1	0	0
Burnley Corporation ...	2	2	0
Burnley Gas Dept.	1	1	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Chadderton U.D.C.	3	3	0
Chester Corporation ...	3	3	0
Chester United Gas Co. ...	2	2	0
Chorley Corporation ...	1	1	0
Chorlton, Miss M. D. ...	0	10	6
*Clayton, R. H.	5	0	0
Clitheroe Corporation ...	2	2	0
Cook, Miss E. B.	0	10	6
Cooper, Miss I.	1	1	0
Coulthard, Miss D.	1	0	0
Crosby Corporation	6	6	0
Davis, D. E.	0	10	6
Deakin, H.	0	10	6
Denton U.D.C.	2	2	0
Duguid, Mr. and Mrs. S. ...	1	1	0
Failsworth U.D.C.	2	2	0
Farnworth Corporation ...	3	3	0
FitzGerald, Miss M.	0	10	6
Forrester, R. E.	0	15	0
Gamlen, R. E.	1	1	0
*Gandy, Charles	5	0	0
Ganter, D.	0	10	6

	£	s.	d.
Gaskell, J.	0	10	6
Glossop Corporation ...	1	1	0
Gregory, Dr. A.	0	10	0
Gregory, J.	1	0	0
Hancock, A.	3	0	0
Hardy, G. & Co.	2	2	0
Hartley, Geo. E.	0	10	0
Hay, Dr. J.	1	1	0
Haycroft, Mrs. E.	0	10	6
Hayhurst, Mr. H. and Mrs. L.	1	1	0
Herbert, J. L.	0	10	6
Herford, Miss A. C.	0	10	6
Heywood Corporation Gas Dept.	1	1	0
Holt, W. T.	0	10	6
Horwich U.D.C.	2	2	0
Howell, W. F.	0	10	0
Hyde Corporation	3	3	0
Hyde, F.	1	1	0
Irlam U.D.C.	2	2	0
Johnson, W. A.	0	10	6
Johnston, S.	0	5	0
Jones, P. G.	0	10	6
Kay, Miss D.	0	5	0
Keddie, Dr. J. T. Chalmers ...	0	10	0
Lancashire & Dist. Coke Assn.	10	10	0
Lancaster Corporation ...	2	2	0
Langford, A. S.	0	10	6
Lapage, Dr. C. P.	0	10	6
Lee, Sir Kenneth	1	1	0
Lee, Miss M.	1	1	0
Littleborough Gas Co. ...	1	1	0
Liverpool Gas Co.	10	10	0
Macclesfield Corporation ...	3	3	0
MacWilliam, Dr. H. H. ...	0	10	6
Manchester Corporation ...	26	5	0
Manchester Electricity Dept.	10	10	0
Manchester Gas Dept. ...	5	5	0
Marple U.D.C.	2	2	0
Marple Gas Dept.	1	1	0
Mather, L. E.	1	1	0
Matthews, W.	1	0	0
McGlynn, E. P.	1	1	0
McKellan, N.	1	1	0
Melland, Mrs. W.	1	1	0
Middleton Corporation ...	2	2	0
Middlewich Gas Light & Coke Co.	2	2	0
Mitchell, L. A.	1	0	0
Moore, S. H.	0	10	6
Morrison, Dr. J.	1	1	0
Mossley & Saddleworth Gas Co. Ltd.	3	3	0
Nelson Corporaton	3	3	0
Newton-le-Willows U.D.C. ...	1	1	0
Oldham Corporation ...	10	10	0
Oldham Gas Dept.	5	5	0
Packer, W.	0	10	6
Pear, Mrs. C.	0	10	6
*Polding, W.	0	10	6
Pontefract Bros.	2	2	0
Priestley, I.	0	10	6
Prest, J.	1	0	0
Preston Corporation ...	10	10	0
Preston Gas Co.	1	1	0
Radcliffe Corporation ...	2	2	0
Refuge Assurance Co. ...	10	10	0
Richards, Mrs. E.	0	5	0
Robinson, Ald. J.	1	0	0
Rochdale Corporation ...	5	5	0
Royton U.D.C.	1	1	0
St. Helen's Corporation ...	10	10	0
Sale Corporation	3	3	0
Salford Corporation	2	2	0
Salford Electricity Committee	10	10	0
Salford Gas Committee ...	10	10	0
Sandbach, Miss E. A. ...	0	10	6
Shaw, R.	0	5	0
Simon, Sir Ernest	2	2	0
Simon-Carves Ltd.	5	5	0
*Smith, Herbert	5	5	0
Smith, Miss J. E. M. ...	0	10	6
Stockport Gas Committee ...	2	2	0
Southport Corporation ...	1	1	0
Stretford Corporation ...	4	4	0
Stretford & Dist. Gas Board	5	5	0
Swale, W. E.	0	10	6
Sweetnam, W. P.	0	10	6
Swinton & Pendlebury Corporation	2	2	0
Taylor, H. F.	0	12	6
Taylor, Miss M. R.	0	10	0
Taylor, P. W.	0	10	6
Tootal, Broadhurst, Lee & Co. Ltd.	5	5	0
Unsworth, J.	0	10	6
Urmston U.D.C.	4	4	0
Warrington Corporation ...	5	5	0
Wells, Dr. N. H.	0	5	0
West's Gas Improvement Co. Ltd.	10	10	0
Whiston R.D.C.	1	1	0
Widnes Corporation ...	5	5	0
Wigglesworth, Miss E. ...	1	0	0
Winsford Gas Co. Ltd. ...	2	2	0
Wrexham Corporation ...	5	5	0
Young, J. W.	1	1	0

Division 4—North-East

Angus, Col. E. A.	3	3	0
Baker, G. M.	0	10	6
Caller, Dr. S.	0	10	6
Chester-le-Street R.D.C. ...	2	2	0
Darlington Corporation ...	5	5	0
Durham U.D.C.	1	1	0
Easington R.D.C.	5	5	0
*Gandy, Mr. and Mrs. H. ...	1	10	0
Gateshead Corporation ...	1	1	0
Hartlepool Gas & Water Co.	1	1	0

	£	s.	d.
Hexham Gas Co.	2	2	0
Houghton-le-Spring U.D.C.	3	3	0
Moulsdale Williams, Mrs. E.	0	10	6
Newcastle upon Tyne Corporation	15	15	0
Newcastle & Gateshead Gas Co.	5	0	0
Stanley, Co. Durham, U.D.C.	3	3	0
Stockton-on-Tees Corporation	5	0	0
Sunderland Corporation ...	10	10	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	1	0	0

Division 5—Yorkshire

Adwick le Street U.D.C. ...	2	2	0
Aireborough U.D.C. ...	1	1	0
Batley Corporation	3	3	0
Bingley U.D.C.	2	2	0
Bonner, J. R.	0	5	0
Bradford Civic Society ...	1	1	0
Bradford Gas Dept.	5	5	0
Bray, George & Co. ...	10	10	0
Bridlington Corporation ...	2	2	0
Brighouse Corporation ...	3	3	0
Brown, G. L.	2	2	0
Bullwinkle, C. L. S.	0	10	6
Castleford U.D.C.	2	2	0
Cellan-Jones, G.	2	2	0
Clayton, Son & Co. Ltd. ...	2	2	0
Clegg, E.	0	10	6
Coke Oven Managers' Assn.	10	10	0
Craddock, Mr. and Mrs. H. ...	1	1	0
Doncaster Corporation ...	4	4	0
Elland-cum-Greetland Gas Co.	2	2	0
Elwell, Mrs. E.	0	10	6
Gallimore, Miss M.	0	10	6
Goldstern, W.	0	10	6
Goodfellow, J.	0	10	6
Graucob, F. Ltd.	2	2	0
Halifax Corporation	2	2	0
Hebden Royd U.D.C. ...	1	1	0
Holmes, W. C. & Co. Ltd. ...	10	10	0
*Holmes, W. G.	2	10	0
Huddersfield Corporation ...	2	2	0
Hull Corporation	15	15	0
Jones, G.	0	10	6
Leeds Corporation	15	15	0
Leeds Electricity Dept. ...	10	10	0
Leeds Gas Dept.	25	0	0
Lister, H. & Sons Ltd. ...	2	2	0
Marrian, Miss M. E. ...	0	10	6
Marshall, G. C.	0	5	0
Micklethwait, R. G.	0	10	0
Morley Corporation	3	3	0
Neill, W. C. H.	0	10	6
Nicholson, P. B.	1	1	0
Osborne, Dr. H.	1	1	0
Power Gas Corporation Ltd.	5	5	0
Pudsey Corporation	1	1	0
Reif, Arnold E.	1	1	0
Rothwell U.D.C.	2	2	0
Scarborough Corporation ...	2	2	0
Scarborough Gas Co. ...	1	1	0
*Severs, J. S.	1	0	0
Sheffield & Dist. Gas Co. ...	10	10	0
Shipley U.D.C.	3	3	0
Slagg, J. H.	0	5	0
Spenborough U.D.C. ...	3	3	0
Spenborough U.D.C. Gas Dept.	2	2	0
*Turner, T. Henry	0	10	6
Wakefield Corporation ...	5	5	0
Warwick, H.	0	10	6
Webb, R. N.	1	1	0
West Riding Group of Gas Companies	10	10	0
Wood, F. T.	0	10	6
Yeadon & Guiseley Gas Co.	2	2	0
York Corporation	5	5	0
Yorkshire Electric Power Co.	10	10	0
Yorkshire Gas Coke Assn. ...	25	0	0

Division 6—West Midlands

Adler, Dr. S.	1	1	0
Allday, W. & Co. Ltd. ...	1	1	0
Barrow, H.	0	5	0
Best, J. K.	0	10	6
Bilston Corporation	5	5	0
Birmingham Corporation ...	31	10	0
Birmingham Gas Dept. ...	5	5	0
Brierley Hill U.D.C. ...	3	3	0
Brierley Hill & Dist. Gas Co.	1	1	0
Burton-upon-Trent Corporation	3	3	0
Cannock District Gas Co. Ltd.	3	3	0
Coventry Corporation ...	10	10	0
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.	0	10	6
Herbert, A. Ltd.	1	1	0
Hutchinson, G. H.	0	10	6
Iron Bridge & Dist. Gas Co. Ltd.	2	2	0
Johnson, R.	0	10	6
Jones, C. F.	1	1	0
Kidderminster Corporation ...	4	4	0
Kidsgrove Gaslight Co. ...	3	3	0
Ludlow Union Gas Co. Ltd.	2	2	0
Malpas Gas Co. Ltd. ...	1	1	0
Market Drayton Gas Co. ...	2	2	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Newcastle-under-Lyme Corporation	4	4	0
Radiation Ltd.	10	10	0
Redditch Gas Co.	10	10	0
Rowley Regis Corporation ...	2	2	0
Rugeley Gas Co.	2	2	0

	£	s.	d.
Severn Valley Gas Corporation Ltd.	10	10	0
Shrewsbury Gas Light Co. ...	10	10	0
Smart, R. Cecil	0	5	0
Smethwick Corporation ...	5	5	0
Solihull Gas Co.	1	1	0
Stafford Corporation ...	1	1	0
Stoke-on-Trent Corporation	15	15	0
Stoke-on-Trent Gas Dept. ...	5	5	0
Stone Gas Light & Coke Co. Ltd.	2	2	0
Stourbridge Gas Dept. ...	1	1	0
Stourport Gas Co.	3	3	0
Tamworth Gas Light & Coke Co.	3	3	0
Trezise, W. E.	1	1	0
Wall, John M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Wednesbury Corporation ...	2	2	0
Wellington (Salop) Gas Co. ...	10	10	0
Wem Gas Light & Coke Co. Ltd.	1	1	0
West Bromwich Corporation	2	2	0
Whitchurch (Salop) Gas Co. Ltd.	2	2	0
Wilkins, Dr. E. H.	0	10	6
Wolverhampton Corporation	10	10	0
Wolverhampton Gas Co. ...	5	5	0
Wolverhampton Electricity Dept.	1	1	0

Division 7—East Midlands

Ambler, T. & Sons	1	1	0
Ashwell & Nesbit Ltd. ...	2	2	0
Bakelite Ltd.	2	2	0
Beeston & Stapleford U.D.C.	3	3	0
Boston Corporation	2	2	0
Cambridge Corporation ...	1	1	0
Cambridge University & Town Gas Light Co. ...	21	0	0
Charlesworth, Mrs.	0	5	0
Chesterfield Corporation ...	4	4	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V. ...	0	10	6
Coote & Warren, Ltd. ...	1	1	0
Corrin, H. R.	0	10	6
Dearden, J.	0	10	6
Derby Corporation	1	1	0
Fry, Miss R.	1	1	0
Gt. Grimsby Gas Co. ...	1	1	0
Grimsby Corporation ...	5	5	0
Gt. Yarmouth Gas Co. ...	4	4	0
Gurney, J.	5	5	0
Hall, Mrs. M. C.	1	1	0
Heanor U.D.C.	2	2	0
Ipswich Gas Light Co. ...	15	15	0
Kirkby-in-Ashfield U.D.C. ...	1	1	0
Leicester Corporation ...	26	5	0
Leicester Gas Dept.	3	3	0
Lincoln Corporation ...	5	5	0
Long Eaton Gas Co. ...	10	10	0
Lowestoft Water & Gas Co.	2	2	0
Mansfield Corporation ...	3	3	0
Melton Mowbray Gas Light & Coke Co.	3	3	0
Messenger, Cllr. Mrs. R., J.P.	0	10	6
McHugh, F. G.	0	5	0
Nottingham Corporation ...	15	15	0
Pearson, Dr. S. Vere ...	0	10	0
Ross Gas Co. Ltd.	2	2	0
Swadlincote District U.D.C.	2	2	0
Uppingham Gas Light & Coke Co. Ltd.	1	1	0
Wright, J.	1	0	0

Division 8—South-West

Abercarn U.D.C.	1	1	0
Bath Corporation	6	6	0
Bradshaw, Miss G.	0	5	0
Bristol Corporation	5	5	0
Bristol Gas Co.	5	5	0
Bromyard Gas Co. Ltd. ...	1	1	0
Brynmawr & Blaina Gas Co.	1	1	0
Caldicot & Dist. Gas Light & Coke Co. Ltd.	2	2	0
Campbell, A. F.	1	1	0
Cardiff Corporation	10	10	0
Cardiff Gas Light & Coke Co.	13	13	0
Cheltenham Corporation ...	4	4	0
Cheltenham & District Gas Co.	5	5	0
Chepstow Gas Co.	2	2	0
Clevedon & Yatton Gas Co.	1	1	0
Coulthurst, Mrs. A.	0	10	6
Dixon, Thomas	0	10	6
Ebbw Vale U.D.C.	3	3	0
Exeter Gas Light & Coke Co.	2	2	0
Fry, Miss A.	0	10	6
Gas Consolidation Ltd. ...	10	10	0
Gloucester Gas Light Co. ...	5	5	0
Hereford Corporation ...	2	2	0
Leominster Gas & Coke Co.	2	2	0
McDougall, A.	2	2	0
Monmouth Gas & Water Works Co. Ltd.	2	2	0
Monmouthshire & South Wales Coal Owners' Assn.	50	0	0
Morgan, D. & Sons ...	2	2	0
Newport Corporation ...	5	5	0
Newport (Mon.) Gas Co. ...	10	10	0
Rogers, P.	2	2	0
*Sanger, Mrs. A. D. ...	1	0	0
Seale, Mrs. I. L.	0	10	6
Shaftesbury, Lady	0	10	0
Silburn, Mrs. E.	0	10	6
Stroud Gas Light & Coke Co.	3	3	0
Swindon Corporation ...	4	4	0
Swindon United Gas Co. ...	5	5	0

	£	s.	d.
Tredegar U.D.C.	2	2	0
Wales & Monmouthshire Assn. of Gas Engineers & Managers	1	1	0
Welshpool Gas Co. Ltd. ...	1	1	0
Weston-super-Mare Corporation	2	2	0
Weston-super-Mare & Dist. Gas Co.	1	1	0

Division 9—South-East

Acton Corporation	2	2	0
Acworth, A. W.	0	10	6
Acworth, Miss E. A. ...	1	1	0
Acworth, Miss W. B. ...	2	2	0
Adam, W. W.	1	1	0
Alston, Dr. J. M.	1	1	0
Andover Lighting & Power Co.	2	2	0
Ascot District Gas & Electricity Co.	2	2	0
Ascot Gas Water Heaters Ltd.	10	10	0
Ashford, D. J.	0	15	0
Associated Gas & Water Undertakings Ltd. ...	10	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R. Ltd.	1	1	0
Banbury Gas Light & Coke Ltd.	1	1	0
Barber, S. S.	0	10	6
Barking Corporation ...	1	1	0
Bastian & Allen Ltd. ...	2	2	0
Baxter, W. L.	1	1	0
Beard, J. R.	1	1	0
Beit, Sir Alfred	1	1	0
Bennett, M. J.	1	0	0
Berry, Dr. J. A.	1	1	0
Bethnal Green Corporation ...	1	1	0
Binderman, Mrs. A.	0	5	0
Blacker, E.	0	10	6
Bognor Gas & Electricity Co.	1	1	0
Bonstow, T. L.	0	10	0
Bossom, A., M.P.	2	2	0
Bournemouth Corporation ...	2	2	0
Bournemouth Gas & Water Co.	2	2	0
Braidwood, G. L.	0	10	6
Brighton Corporation ...	10	10	0
Brighton, Hove & Worthing Gas Co.	5	5	0
British Electrical & Allied Manufacturers' Assn. ...	10	10	0
British Electrical Development Assn.	100	0	0
British Gas Federation ...	262	10	0
British Medical Association ...	10	10	0
Broadstairs Gas Co.	1	1	0
Buzzacott, J. O.	2	2	0
Cable Makers' Association ...	10	10	0
Camberwell Corporation ...	10	10	0
Capper-Johnson, Dr. L. ...	0	10	6
*Chantler, P.	2	0	0
Charrington, Gardner, Locket & Co. Ltd.	1	1	0
Chertsey Gas Consumers Co. Ltd.	2	2	0
Chingford Corporation ...	3	3	0
Chislehurst & Sidcup U.D.C.	4	4	0
Chubb, Sir Lawrence ...	2	2	0
Clarke, D. K.	0	10	6
Clinch, H. G.	0	10	6
Coal Utilization Joint Council	10	10	0
Commercial Gas Co. ...	3	3	0
Crowe, Cllr. W. H.	2	2	0
Croydon Gas Co.	10	10	0
Darwen, J.	1	1	0
Deal & Walmer Gas Co. ...	1	1	0
Deptford Corporation ...	2	2	0
Dormer, A. E.	0	8	6
Dover Gas Co.	3	3	0
Eastbourne Gas Co.	2	2	0
East Cowes Gas Co. ...	1	1	0
East Ham Corporation ...	10	10	0
East Kent Gas Co. Ltd. ...	1	1	0
Edmonton Corporation ...	2	2	0
Edwards, Mrs. E. E. ...	0	10	6
Electrical Assn. for Women	10	10	0
*Elsworthy, J. G.	1	11	6
Farnborough U.D.C. ...	2	2	0
Finchley Corporation ...	4	4	0
Finsbury Corporation ...	2	2	0
Folkestone Gas & Coke Co.	2	2	0
*Foss, Mrs. A.	0	10	6
Fox, F.	0	10	0
Fry, Miss M.	1	0	0
Fulham Corporation ...	12	12	0
*Gandy, Miss R. L.	0	10	6
Gas Light & Coke Co. ...	52	10	0
General Electric Co. Ltd. ...	10	10	0
George, A. K.	1	1	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.	0	10	6
Goodchild, J. R.	0	5	0
Goodeve, Sir C. F.	1	1	0
Gower, R. Leveson	0	5	0
Gravesend Corporation ...	2	2	0
Gravesend & Milton Gas Light Co.	2	2	0
Greenwich Corporation ...	2	2	0
Greenwood, T. A. S. ...	0	10	0
Guildford Corporation ...	5	5	0
Guildford Gas Light & Coke Co.	2	2	0
Gummer, R. H.	1	1	0
Hammersmith Corporation ...	10	10	0
*Hampson, G. B.	0	10	6
Hastings & St. Leonard's Gas Co.	3	3	0
Hayes & Harlington U.D.C.	2	2	0

	£	s.	d.
Herne Bay Gas Co.	1	1	0
Hessel Gas Co.	2	2	0
Heston & Isleworth Corporation	2	2	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation ...	1	1	0
Horder, Lord	5	5	0
Hornchurch U.D.C.	3	3	0
Hornsea Gas Co.	3	3	0
Hyland, A.	0	10	6
Ideal Boilers & Radiators Ltd.	5	5	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	36	15	0
Institution of Heating & Ventilating Engineers ...	3	3	0
Jast, Mrs. L. S.	0	10	6
Keene, C. E.	1	0	0
Kemp, F. W.	0	10	6
Kensington Corporation ...	1	1	0
Kirkman, Mrs.	1	1	0
Kisbee, R. H....	0	10	6
Lambeth Corporation ...	1	1	0
Lea Bridge & Dist. Gas Co.	10	10	0
Lee, Miss D. C.	2	2	0
Lee, S/Sgt.	0	15	6
*Lessing, Dr. R.	1	1	0
Lewin, Dr. O. M. S. ...	1	1	0
Lewes Gas Co.	1	1	0
Leyton Corporation	5	5	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S.	1	0	0
London & Counties Coke Assn.	52	10	0
London, Corporation of ...	26	5	0
London Electricity Supply Assn.	10	10	0
London Power Co.	2	2	0
Low Temperature Carbonisation Ltd.	50	0	0
Luton Corporation	10	10	0
Luton Gas Co.	3	3	0
Maidstone Gas Co.	3	3	0
Malden & Coombe Corporation	1	1	0
Margolis, A. E.	0	10	6
Markham, Major S. F. ...	0	10	6
Matthews, Mrs. M.	0	10	6
McGhie, A. T. S.	0	10	6
*McLachlan, T.	0	10	6
Merton & Morden U.D.C. ...	4	4	0
Mid-Kent Gaslight & Coke Co.	1	1	0
Mitchell, Dr. C. A.	0	10	6
*Munro, Mrs. M. A. ...	0	10	6
North Middlesex Gas Co. ...	10	10	0
Orr, Dr. T.	2	2	0
Oxford Corporation	10	10	0
Oxford & District Gas Co. ...	2	2	0
Paddington Corporation ...	5	5	0
Parkinson, B. R.	0	7	6
Pitman, E.	1	1	0
Pollitzer, E.	2	2	0
Poplar Corporation	1	1	0
Portsmouth Corporation ...	2	2	0
Portsmouth Gas Co. ...	1	1	0
Pratt, A. G.	0	15	6
Rathbone, P. R.	0	10	6
Reading Corporation ...	10	10	0
Reilly, Professor Sir Charles	0	10	6
Rheostatic Co. Ltd.	1	1	0
Rhondda, Lady	0	10	6
Richmond Corporation ...	3	3	0
Roberts, J. M.	1	1	0
Robinson, Mrs. E.	1	1	0
Rochester, Chatham & Gillingham Gas Co.	10	10	0
Ryan, J.	0	10	6
Samuel, Viscount & Lady ...	1	1	0
Sanitary Inspectors' Assn. ...	10	10	0
Sakoshansky, E.	0	5	0
Sheppy Gas Co.	2	2	0
Shore, Lt.-Col. B. C. G. ...	0	10	6
Shoreditch Corporation ...	3	3	0
Sigma Instrument Co. Ltd. ...	3	3	0
Sittingbourne District Gas Co.	1	1	0
Slough Corporation	3	3	0
Slough Gas & Coke Co. ...	10	10	0
Smith, Dr. E. W.	2	2	0
Smith & Wellstood Ltd. ...	1	1	0
Solid Smokeless Fuels Assn.	10	10	0
Southall Corporation ...	1	1	0
Southampton Corporation ...	1	1	0
Southampton Gaslight & Coke Co.	5	5	0
South Eastern Gas Corporation	10	10	0
Southend-on-Sea Corporation	10	10	0
South Suburban Gas Co. ...	10	10	0
Southwark Corporation ...	2	2	0
Stepney Corporation ...	4	4	0
Sturtevant Engineering Co. Ltd.	2	2	0
Surbiton Corporation ...	1	1	0
Taylor, Professor E. G. R. ...	1	0	0
Tiranti, Alex	0	5	0
Tottenham Corporation ...	10	10	0
Tottenham & District Gas Co.	10	10	0
Trier, F. Newton	2	2	0
Troup, Lady W.	0	10	0
Tunbridge Wells Gas Co. ...	3	3	0
Twickenham Corporation ...	5	5	0
Uxbridge U.D.C.	2	2	0
Uxbridge, Maidenhead, Wycombe & Dist. Gas Co. ...	10	10	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. H. A. ...	5	5	0
*Wadham, Miss D.	1	0	0

	£	s.	d.
Walters, P. F.	0	10	6
Wandsworth Corporation ...	5	5	0
Wandsworth & District Gas Co.	10	10	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation ...	2	2	0
Welwyn Garden City Women's Co-op Guild ...	0	5	0
Wembley Corporation ...	10	10	0
West Ham Corporation ...	1	1	0
Westminster City Council ...	5	5	0
White, Dr. H. D. J.	0	10	6
Whitstable Gas & Coke Co. Ltd.	1	1	0
Wicksteed, J. H.	0	10	0
Willesden Corporation ...	10	10	0
Wimbledon Corporation ...	4	4	0
Windsor Royal Gaslight Co.	2	2	0
Women's Gas Council ...	10	10	0
Woodall-Duckham Vertical Retort Ltd.	10	10	0
Wood Green Corporation ...	1	1	0
Overseas Subscriptions			
Cadbury, G. W.	1	1	0
Jaffray, F. A.	2	0	0
Vereeniging Town Council (S.A.)	1	1	0
Subscriptions and donations under 5/-	0	19	6
TOTAL	£2,713	4	6

Information about the Society

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organisation, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the counties in each Division).

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathise with and wish to promote its objects. These, to quote from the Constitution, are "to secure throughout the United Kingdom the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organised nationally, they are entitled to participate in any activities organised by or in their own Division.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

ASSOCIATES—Subscribers of less than 10s. 6d. are Associates, who receive some literature and notices, but not all the privileges of membership.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	2 guineas
25,000 to 50,000	3 „
50,000 to 75,000	4 „
75,000 to 100,000	5 „
100,000 to 250,000	10 „
250,000 to 500,000	15 „
Over 500,000	25 „

INSTITUTION MEMBERS (which includes Societies, Associations and Groups)—Not less than 10 guineas.

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for "Smokeless Air" and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc Institution and Corporate Members may appoint two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and address of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

Services to Members

Information and Advice

Members may obtain from the Society, at the discretion of the Executive Council, and free of charge, advice, assistance and information on questions relating to atmospheric pollution and its prevention.

Library

The Society possesses an extensive collection of books, reports, and pamphlets, British and foreign (largely U.S.A.) on smoke abatement and related subjects. Copies may be borrowed by members or consulted at Chandos House.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on smoke prevention and related subjects. It is hoped very shortly to draw up a new Panel of Lecturers, similar to that in use before the war. This will indicate the area, subjects, types of meeting, etc, with which each lecturer is concerned. Members qualified and prepared to have their names included in the Panel are invited to write to the General Secretary.

Lantern Slides and Films

The lantern slide collection is to be revised and extended and slides will be available on loan at a charge of 1d. each per lecture, plus postages Slides for inclusion in this collection, especially of modern equipment, will be received with thanks. **Films**—The Society does not at present possess films of its own, but will be glad to suggest suitable films that may be available from other sources.

Exhibits

The pre-war exhibit service is being resumed and improved Inquiries about the loan of exhibits, or the Society's participation in exhibitions should give the fullest details possible of what is required. In view of transport and packing difficulties material can be loaned more readily if it can be collected from and returned to Chandos House by car or van.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2/6 per set. (2) New prize-winning photo-colour poster, 30 in. x 20 in. Price 6d. each. (3) New pictorial chart primarily for school use, " These are the Things that Smoke Does," 30 in. x 20 in. Price 6d. (Other charts to follow in due course). Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes.

Photographs

A collection of photographs of smoke abatement subjects, suitable for reproduction and exhibition purposes, is being built up, and prints will be forwarded on request. Subjects required should be specified. Reproduction fees, where chargeable, at standard rates. New photographs of high pictorial quality are desired, by gift, copyright purchase, or other arrangement.

The Covenant Subscription Scheme

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognised as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9/- in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, which ever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society, to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name)..... *of*.....
(address).....(description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of....., 194....., *or during my life which ever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of.....194.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....

(Signature) .....

Publications—continued

Smokeless Air. The Society's quarterly journal. The only magazine in the world devoted to the problems of atmospheric pollution. Gratis to members or 2/6 per annum, post free.

The Law of Smoke Nuisances. By W. R. Hornby Steer, M.A., LL.B., Recorder of South Molton, Standing Counsel to the Society. This book, based on an earlier work by Randolph A. Glen and revised and extended in accordance with the Public Health Acts of 1936, is likely to be accepted as a standard work on the subject. In addition to the explanatory chapters, it contains tables of statutes and cases and the relevant sections from the two Acts and the Local Government Act, 1933. 8vo., 65 pages, 1/- paper-backed; 2/6 cloth bound.

Science Museum Exhibition Handbook. This is not only a detailed guide to the Exhibition, but, containing a series of twelve authoritative articles on the main aspects of the problems, is a permanent and useful reference book. 80 pages, medium 8vo. Price 6d.

Fumifugium: or the Smoke of London Dissipated. By John Evelyn. This rare and fascinating book, first published in 1661 by command of Charles II, has been republished by the Society with an introduction by Rose Macaulay. In spite of its age this indictment of the smoke evil by the author of the famous Diaries, remains true, witty and penetrating. Illustrated with original wood engravings and a portrait of Evelyn. Paper covers, 6d. Cloth bound, 1/6.

The State of the Atmosphere. A valuable and informative paper by the late Sir Frank Baines, F.R.I.B.A. With a section on the effects of smoke upon building stone. Royal 8vo, pp. 36. Price 6d.

Smoke and Aviation. Full report of a special conference on this subject. Four papers and discussions. Illustrated. 40 pages 8vo. Price 6d.

Britain's Burning Shame. This pamphlet has been described in a review as "a masterpiece of modern popular propaganda." It puts the smoke problem in its simplest terms, especially as it affects the home, and is profusely illustrated. Single copies 2d. 12/6 per 100.

Conference Proceedings. Copies are available at 1/- each of the full reports, containing papers and discussion of conferences held in 1932, 1934, 1936 (2/-), 1937, 1938 and 1943.

Smoke Emission on Chart. A chart of tinted diagrams of different intensities of smoke, for making observations of chimney emissions. The grades shown are pale grey, grey, black and dense black. 3d. each, 2/6 per dozen.

Proceedings of the London Conference, 1943. A complete report of the conference on "Smoke Prevention in Relation to Plans for Post-War Reconstruction," held in London on 5th November, 1943. 24 pages 1/-.

Smoke Abatement in Greater London. Report of a conference of London and Great London Local Authorities, 1938. Including a paper read by Dr. J. S. Owens, A.M.Inst.C.E., M.I.Mech.E., on "The present position and trends of Atmospheric Pollution in Greater London." 22 pages, 6d.



All post free.

Reduced prices for quantities.

(*See inside front cover for other publications*).

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NATIONAL SMOKE ABATEMENT SOCIETY 1948

OFFICERS • COUNCIL • DIVISIONS • LOCAL AUTHORITY MEMBERS • INFORMATION

SERVICES • 18th ANNUAL REPORT (1947) SUBSCRIPTIONS • ACCOUNTS • PUBLICATIONS

INVITATION

If you are not yet a member of the Society, and if there is no membership form enclosed with this Report, please write for one and for specimen copies of SMOKELESS AIR and other publications.

Individual annual subscriptions are from 5/-, and there are special membership rates for Local Authorities, Corporate Bodies, etc. (see page 20).

The Society's most urgent need is for more members. We shall be grateful for your support.

National Smoke Abatement Society

1948

Contents

	Page
Officers	2
Vice-Presidents	2
Elected Members of the Council	2
Local Authority Members	3
Divisional Councils	5
18th Annual Report, for 1947	6
Accounts for year ended 30th June, 1947 ..	13
Subscriptions and Donations	14
Information about the Society	19
Services to Members	21
The Covenant Subscription Scheme ..	22
Publications of the Society	23

Central Offices

CHANDOS HOUSE, BUCKINGHAM GATE, WESTMINSTER, S.W.1

ABBey 1359

109/2500

National Smoke Abatement Society

President: SIR GEORGE ELLISTON, M.C., M.A., J.P., D.L.
Past President: WILL MELLAND, M.A., J.P.
Chairman of the Council: CHARLES GANDY, B.A.
Deputy Chairman: JOHN W. BEAUMONT, F.R.SAN.I., F.S.I.A.
Hon. Treasurer: SIR ERNEST SMITH, C.B.E., D.SC., F.I.C., M.I.CHEM.E., M.I.GAS.E.
Standing Counsel: W. R. HORNBY STEER, M.A., LL.B.
General Secretary and Editor: ARNOLD MARSH, M.SC.TECH., M.INST.F.

Vice-Presidents:

The Rt. Hon. the Viscount Cecil of Chelwood, P.C., K.C.
The Rt. Hon. the Viscount Samuel, P.C., G.C.B., G.B.E.
The Rt. Rev. the Lord Bishop of Birmingham, F.R.S., SC.D.
The Rt. Hon. Lord Horder, G.C.V.O., M.D.
~~The Rt. Hon. Lord Simon of Wythenshawe~~
Sir Ernest Smith, C.B.E., D.SC., F.I.C., M.I.CHEM.E., M.I.GAS.E.
A. C. Bossom, F.R.I.B.A., J.P., M.P.
R. Veitch Clark, M.A., B.SC., M.B., CH.B., D.P.H.
H. G. Clinch, F.R.SAN.I., F.S.I.A.
Julian Huxley, F.R.S., M.A., D.SC.
E. H. Keeling, M.C., M.P.
J. Johnstone Jervis, M.D., D.P.H.
R. H. H. Jolly, M.D., B.S.(Lond.)., D.P.H.
Alderman J. J. Milton
H. Osborne, M.D., M.R.C.S.
Violet Roberton, C.B.E., LL.D., J.P.
W. Brownhill Smith, M.V.O., O.B.E., D.L., J.P.
Alderman G. J. Timmis, O.B.E., J.P.

Elected Members of the Council

Scottish Division

John Innes
Allan W. Ritchie, M.B.E., F.R.SAN.I.
Bailie Violet Roberton, C.B.E., LL.D., J.P., F.R.San.I

North Western Division

J. L. Burn, M.D., B.S., B.HY., D.P.H.
S. N. Duguid, J.P., B.SC.TECH., F.INST.F., F.R.SAN.I.
W. M. Frazer, O.B.E., M.D., M.SC., D.P.H.
Charles Gandy, B.A.
W. L. Mather, M.C., M.A.
C. Metcalfe Brown, M.D., D.P.H.
Councillor Professor F. E. Tylecote, M.D.

North Eastern Division

Alderman John Chapman
Alderman P. S. Hancock, O.B.E.

Yorkshire Division

J. W. Beaumont, F.R.SAN.I., F.S.I.A.
James Goodfellow, M.R.SAN.I., A.M.I.S.E.
J. Johnstone Jervis, M.D., D.P.H.
James Law, M.R.SAN.I., M.S.I.A.

West Midlands Division

G. W. Farquharson
W. R. Martine, M.B.E., T.D., M.D., D.P.H.
C. A. Stansbury, M.R.SAN.I., M.S.I.A.

East Midlands Division

Councillor A. Mead
A. Wade, F.R.SAN.I.

South Western Division

G. W. Dhenin
F. R. Jefford, F.R.SAN.I., F.S.I.A.
F. J. Redstone, F.R.SAN.I., F.S.I.A.

South Eastern Division

R. A. Baskett, B.E.M., F.S.I.A.
N. Bastable, M.R.SAN.I., F.S.I.A.
H. G. Clinch, F.R.SAN.I., F.S.I.A.
E. H. Gray, F.S.I.A.
R. Lessing, PH.D., F.R.I.C., F.INST.F., M.I.CHEM.E.
G. Nonhebel, M.I.CHEM.E., F.R.I.C., F.INST.F.
H. L. Snowden, M.S.I.A.
L. A. Stroud, D.P.A., F.R.SAN.I.
S. Swift, M.B.E.
W. Tillcock

Local Authority Members

as at 28th February, 1948

Division 1. Scotland

Aberdeen
Airdrie
Ardrossan
Ayr
Clydebank
Coatbridge
Dumbarton
Dunbarton C.C.
Dundee
Edinburgh
Falkirk
Glasgow
Greenock
Hamilton
Hawick
Inverness
Irvine
Johnstone
Kilmarnock
Kilsyth
Kirkaldy
Kirkintilloch
Lanarkshire C.C.
Motherwell and Wishaw
Paisley
Perth
Port Glasgow
Renfrew
Renfrewshire
Rothesay
Rutherglen

Division 3. North-West

Atherton
Barrow-in-Furness
Blackburn
Blackpool
Bolton
Bootle
Burnley
Bury
Buxton
Carlisle
Chadderton
Cheadle & Gatley
Chester
Clitheroe
Crompton
Crosby
Darwen
Denton
Droylsden
Eccles
Failsworth
Farnworth
Glossop
Hale
Horwich
Huyton-with-Roby
Hyde
Irlam
Lancaster
Lancashire C.C.
Leigh
Littleborough
Liverpool
Macclesfield
Manchester
Marple
Middleton
Nantwich
Nelson
Newton-le-Willows
Northwich
Oldham
Ormskirk
Preston
Radcliffe
Rhyl
Rochdale
Royton
St. Helens
Sale
Salford
Stalybridge
Stockport
Stretford
Swinton and Pendlebury
Urmston
Wallasey
Warrington
Widnes
Wigan
Wilmslow
Workington
Wrexham

Division 4. North-East

Berwick-upon-Tweed
Billingham
Blaydon
Brandon and Byshottles
Chester-le-Street R.D.C.
Chester-le-Street U.D.C.
Darlington
Easington
Felling
Gateshead
Hartlepool
Hetton
Houghton-le-Spring
Lanchester
Longbenton
Newburn
Newcastle-upon-Tyne
Sedgefield
Spennymoor
South Shields
Stanley
Stockton-on-Tees
Sunderland
Washington
West Hartlepool
Whickham

Division 5. Yorkshire

Adwick-le-Street
Aireborough
Batley
Bentley-with-Arksey
Bingley
Bradford
Bridlington
Brighouse
Castleford
Colne Valley
Conibrough
Dearne
Dewsbury
Doncaster
Eston
Halifax
Harrogate
Hemsworth
Huddersfield
Hull
Keighley
Leeds
Mexborough
Mirfield
Morley
Pontefract
Pudsey
Rawmarsh
Redcar
Rothwell
Sheffield, Rotherham and Dist. Smoke Abatement Committee
Shipley
Stocksbridge
Wakefield
York

X NE. Div.

Division 6. West Midlands

Bilston
Birmingham
Brierley Hill
Burton-upon-Trent
Cannock
Coventry
Darlaston
Dudley
Halesowen
Kidderminster
Meriden
Newcastle-under-Lyme
Oldbury
Rowley Regis
Rugby
Sedgley
Shrewsbury
Smethwick
Solihull
Staffordshire C.C.
Stoke-on-Trent
Walsall
Wednesbury
West Bromwich
Willenhall
Wolverhampton

Division 7. East Midlands

Beeston and Stapleford
Blackwell
Bolsover
Boston
Chesterfield
Corby
Gainsborough
Grimsby
Heanor
Hinckley
King's Lynn
Kirky-in-Ashfield
Leicester
Lincoln
Mansfield
Nottingham
Peterborough
Rushden
Staveley
Sutton-in-Ashfield
Swadlincote
Worksop

Division 8. South-West

Abercarn
Abertillery
Bath
Blaenavon
Bristol
Cardiff
Cheltenham
Clevedon
Cwmbran
Ebbw Vale
Gloucester
Hereford
Kingswood
Llwchr
Merthyr Tydfil
Mynyddislwyn
Neath
Neath R.D.C.
Newport (Mon.)
Pontypridd
Portishead
Swindon
Thornbury R.D.C.
Tredegar

Division 9. South-East

Acton
Banbury
Barking
Barnes
Battersea
Bermondsey
Bexley
Brighton
Camberwell
Chatham
Chelmsford
Chelsea
Chingford
Chislehurst and Sidcup
Crayford
Dagenham
Dartford
Dartford R.D.C.
East Ham
Edmonton
Erith
Eton R.D.C.
Farnborough
Feltham
Finchley
Finsbury
Fulham
Gravesend
Guildford
Hackney
Hammersmith
Harrow
Heston and Isleworth
Holborn
Hornchurch
Ilford
Kingston-on-Thames
Letchworth
Lewisham
Leyton
London, City of
Maidenhead
Malden and Coombe
Merton and Morden
Oxford
Paddington
Reading
Richmond
St. Albans
St. Marylebone
St. Pancras
Shoreditch
Slough
Southall
Southend-on-Sea
Southwark
Stepney
Sutton and Cheam
Uxbridge
Tottenham
Thurrock
Wanstead and Woodford
Wembley
Westminster
Willesden
Wimbledon
Windsor

Local Authority Associates

Accrington, Bethnal Green, Birkenhead, Bournemouth, Cambridge, Carshalton, Chorley, Derby, Durham, Enfield, Gosport, Greenwich, Kensington, Lambeth, Luton, Mitcham, Portsmouth, Reigate, Romford, Scarborough, Southampton, Southport, Stafford, Wandsworth, Watford, West Ham, Weston-super-Mare, Whiston, Whitley Bay, Wood Green.

Scottish Divisional Council

Chairman: Allen W. Ritchie, M.B.E., F.R.SAN.I.

Hon Secretary: John Traill, B.L.

Secretary's Office: City Chambers, Glasgow.
Central 9600
Ext. 220

North West Divisional Council

Chairman: Councillor Professor F. E. Tylecote, M.D.

Hon. Secretary: H. Moore

Secretary's Office: Public Health Dept., Town Hall, Manchester.
Central 3377
Ext. 339

Yorkshire Divisional Council

Chairman: T. Henry Turner, M.SC.

Hon. Secretary: James Goodfellow

Secretary's Office: Public Health Dept., 12 Market Buildings, Vicar Lane, Leeds, 1.
Leeds 30211, *Ext.* 11.

Eighteenth Annual Report

for the Year ended 31st December, 1947

GENERAL REVIEW

In our last report we were able to record that the year 1946 had been of outstanding importance to the smoke abatement movement by reason of the publication of the Simon Committee's report, its general acceptance by the Government, and the passing of two important local Acts of Parliament that brought on to the statute book for the first time the new principles of smoke prevention advocated and developed by the Society. Although steady progress has continued, 1947 brought no comparable highlights and the economic situation has made it difficult in many ways to press for the speedier progress we wish to see.

From a long-distance viewpoint the attention that had to be given by the whole nation to the problem of fuel, particularly during the February fuel crisis, may prove to be of substantial value to smoke abatement. The public, and those in positions of responsibility especially, are more aware than ever before of the key position of coal and its derivatives in the national economy, and understanding is gradually spreading that if we would but use our fuels more efficiently the present production of coal would be ample for all our needs. The movement towards higher efficiency in the use of fuel is not likely to be halted, and much less to be reversed, by the probable easing of the supply situation, but will continue. It is bound to assist smoke prevention both directly, as an incidental consequence of improvement in use, and indirectly as a supporting reason for the adoption of measures advocated primarily for smoke prevention. The general adoption, for example, of our "prior approval" principle would not only do much to eliminate new sources of smoke, but could at the same time substantially promote fuel savings.

Grit Emission

The mechanization of coal cutting and conveying, now being widely pressed forward in our mines, increases the quantity of mineral impurity in the coal brought to the surface. A large increase in coal cleaning plant is being planned by the National Coal Board, but for the time being much of the coal burned for all purposes contains an abnormally high proportion of mineral matter. The emission of ash and grit into the atmosphere is therefore increased and the situation is made still worse when, because of the lower calorific value of the coal, combustion has to be accelerated by increasing the draught.

There is little doubt that there is a material increase in the number of complaints of "nuisance" due to grit emission, even though it is difficult to obtain quantitative evidence. Possibly, indeed, grit is causing more active annoyance than are nuisances due to smoke itself. We welcome therefore all measures taken to improve the quality of coal and to increase the efficiency and economy of grit arresting appliances, and would especially like to see the latter used more generally in medium and small installations. It is hoped that the Society's "National Survey of the Sources of Pollution" may provide more information on the extent of grit and ash emissions throughout the country.

A particular form of dust nuisance to which attention has been drawn during the year is that from cement works. This is a serious matter in the Thamesside districts of north Kent and south Essex, and the Society was rep-

resented at a well-attended conference of local authorities and other bodies held in Dartford in October. Statements made showed clearly how extensive and serious this trouble is in the area, and a representative Investigation Committee was set up, which the Society has offered to assist at any time desired.

New Generating Stations

The public, local authorities, and others have been concerned about the possible effects of the emission of sulphur acid gases and grit from the new electricity generating stations now being erected and planned. The most controversial case was that of the station to replace the existing one at Bankside, on the south side of the Thames, facing the City of London. Opposition was primarily directed against the spoiling of the future prospect of St. Paul's, the question of the pollution of the atmosphere, and its threat to the cathedral being raised subsequently by the critics of the scheme. The station is to burn oil instead of coal, and it is satisfactory that it has been agreed that flue gas washing plant should be installed.

This however is a concession for a particular case; in general the present intention would appear to be not to install such plant, and anxiety is felt in many quarters and by the Society as to the wisdom of such a policy. A new station, now in course of erection at Carrington, near Manchester, has caused particular concern to the local authorities of the heavily-populated area around it. The Society has co-operated with the authorities, and as a result of a joint conference held in September it has been agreed to begin forthwith to take air pollution observations at a number of points in the vicinity, so that comparisons may be made when the station begins to operate. The Electricity Commission has so far agreed to consider representations for the erection of flue gas washing plant only *after* operations have begun.

THE SOCIETY

Growth Continues

The Brighton Conference in October 1946 gave added impetus to the Society's steady growth. The resolution passed at the conference, in which more local authority support was urged, was followed by an individual invitation to all the larger authorities that were not yet members. The response was exceptionally good, and during the year a further 101 authorities became members. The total local authority membership is now 286, with a further 32 Associates. Although in numbers this is only about one-fifth of the total number of possible local authority members, it is important to note that the population represented is over one-half the total for the whole country.

Other classes of membership have increased only slightly during the year, and substantial improvements cannot be expected until it is possible to devote more money and staff time to preparing and carrying out the appeals that are necessary. The methods required for such appeals are at present being studied by the Publicity Committee.

The Constitution

The new constitution, adopted in 1945, is in practice proving to be very satisfactory, especially now that certain amendments have been made. These have been announced in the "Official Notices" in SMOKELESS AIR and provide for the election of contributors other than individuals as associates, a five guinea membership for corporate bodies as an alternative to that at ten guineas, and the election of Vice Presidents by postal nomination and ballot.

The Council and Committees

During the year the Executive Council met in London (twice), Leeds and Edinburgh. All meetings were well attended. There have also been a number of meetings, eight in all, of the General Purposes, Technical and Publicity Committees. The new

Council elections were held during the summer and the results announced at the Annual General Meeting in Edinburgh on 1st October. The present Council, and also the Officers, Vice-Presidents, and Chairmen of Committees are listed on an earlier page.

Statement on the Fuel Crisis

A Statement of the Society's views on the fuel situation was drawn up and issued on behalf of the Executive Council after the February fuel crisis. It was submitted to appropriate Ministers and Government Departments, the principal political parties, the Press, and others concerned with fuel, and secured some useful publicity.

The Statement emphasized the fact that the crisis could be regarded as one further consequence of the extravagant misuse of coal, and continued: "In present circumstances an increase in coal production is a necessity, but should be regarded only as a temporary and regrettable expedient; scientifically, it is more desirable to employ manpower and materials for a limited period in providing the means to use coal more efficiently, than permanently in producing more coal for further wasteful consumption." It urged the need for a comprehensive National Fuel Policy for "the fullest scientific and efficient preparation and utilization of coal and its derivatives for industry, transport, and in the home." It suggested certain short-term policies, including prior approval, the early implementation of the Simon Committee's recommendations, and the need at once to begin to "ensure that for each purpose for which fuel-energy is needed it shall be used only in the form and by the methods most scientifically and economically preferable for that purpose." Finally, attention was drawn to the serious economic consequences of smoke, "which include a substantial diversion of manpower and materials from the creation of new wealth to unproductive maintenance." The Statement is given in full in SMOKELESS AIR, Summer, 1947.

The Edinburgh Conference

The 1947 conference, held in Edinburgh from 1st to 4th October, had the largest attendance of any smoke abatement gathering ever held in this country. There were present 437 members and delegates, making, with speakers and guests, a total of 466. The papers read and discussions have been published in the *Proceedings of the Edinburgh Conference*. The number of papers, and their subject matter, make this one of the most important volumes yet published by the Society. From one point of view there was perhaps rather too much information, some of it fairly technical, to be readily digested at the conference itself, but from another point of view the presentation of so much material of importance is of considerable value in helping the Society to establish more firmly its standing as an organization of influence and responsibility.

The conference was warmly welcomed at a Civic Reception by the Lord and Lady Provosts and the City Bailies and Councillors. For the first time a conference dinner was arranged and proved to be most successful and enjoyable. The final event for about a hundred members was a motor coach tour into the Highlands. Two resolutions only were passed at the conference, as follows:

(1) *Grit and Sulphur Gases Emission.*
That this conference of the National Smoke Abatement Society views with grave concern the menace to health and amenities caused by the emission of sulphur acids and grit from power stations, blast furnaces, steel works and coke ovens, and calls on the Ministry of Fuel and Power, the National Coal Board, and the Central Electricity Board to take immediate steps to abate these nuisances.

(2) *National Survey of Atmospheric Pollution.*
That the Executive Council be requested to take the necessary steps to undertake a nation-wide survey of the sources and incidence of existing

atmospheric pollution, and that local authorities be urged to co-operate with the Society with this object in view.

Survey of the Sources of Pollution

The survey asked for in the second resolution above has been considered in detail by the Technical Committee and it has been decided to send to each local authority in the country a questionnaire in two parts. Part I will be very short and general and should be returnable without difficulty by all authorities. Part II is more detailed and will take longer to complete. It is however hoped that a high proportion of replies will be received as the information that can be secured will be of considerable importance in a number of ways and should, when analysed, provide facts that so far are completely unknown.

New Legislation Proposals

The proposals for new legislation submitted at the Brighton conference have been revised by the Technical Committee and are now in course of submission to Government Departments, local authorities and their associations, employers' organizations, and trade unions, for the purpose of obtaining the opinions of all interests and possibly suggestions for improvement. The revised proposals are available in printed booklet form.

Publications

It is regretted that pressure of other activities has prevented the production of several new publications that are urgently required. Apart from the *Brighton Conference Proceedings*, the Advance Papers for Edinburgh and the preparation of the *Proceedings* of that Conference, SMOKELESS AIR, and the *New Legislation Proposals*, there has been issued only a "give away" leaflet, 14 *Facts about Smoke*. Supplies of this can be sent free of charge, for use at lectures, exhibitions, etc.

Judging by the absence of any adverse comments from members, SMOKELESS AIR continues to provide news and articles in a form that is appreciated. The weekly review *Time and Tide* was good enough recently to write that "The Smoke Abatement Society claims to have established a reputation for talking sense, a contention borne out by SMOKELESS AIR, which is readable and attractively produced. It is to be hoped that it will find readers who will bother to support its very sensible aim."

Your Chairman and Hon. Treasurer cannot allow to pass without mention here *Smoke: The Problem of Coal and the Atmosphere* by Arnold Marsh, published in October by Faber and Faber, and generally agreed to be the most interesting, important, and comprehensive survey of our whole subject so far written.

Exhibitions

During the year the Society participated in a smoke abatement section of the stand of the Solid Smokeless Fuels Federation at the Ideal Home Exhibition at Olympia. It loaned exhibits for local authority exhibitions in the following towns: York, Hinckley, Stafford, Merton, Herne Bay, Dartford, Sheerness, Brighouse, Ilford and Edmonton. The Edmonton exhibition was for the promotion of fuel economy, and an entirely new exhibit, linking this with smoke prevention, has been prepared. It is available for loan provided that transport can be arranged.

The Divisions

During the year a new Divisional Council, for Yorkshire, has been formed, and is making good progress in its organization. The other Divisional Councils have been very active and successful, and we have invited their Hon. Secretaries to give brief reports of their work during the year as a supplement to this report.

Sir Lawrence Chubb

It is with the deepest regret that we have to record the death, on February 18th, 1948, of Sir Lawrence Chubb. Until ill-health compelled him to retire last summer Sir Lawrence had been an officer of the Society since its formation in 1929, first as Hon. Advisory Secretary and then as Hon. Treasurer.

Before that he had been Secretary of the senior of our parent bodies, the Coal Smoke Abatement Society, from about 1902. Sir Lawrence had thus been intimately associated with the smoke abatement movement since its earliest and most difficult days and as its first and indeed for many years its only executive officer, he was responsible not only for laying and building up from the foundations, but also for a great deal of the sound policy and propaganda that steadily transformed opposition and apathy into understanding and support.

Sir Lawrence's knowledge and clear understanding of legal matters was often of inestimable value to the Society and the struggle for the Public Health (Smoke Abatement) Act, 1926, was largely directed by him. In later years his many other activities—footpaths and commons preservation and the national drive for playing fields especially—gave him less time for smoke abatement, but he was always ready to do for the Society everything that was asked of him, and many were the times that his counsels were sought and were always wisely and generously given. His loss means more to the Society than even most of its members will be able to appreciate.

Finances and Development

Your Chairman and Secretary would like to express their pleasure, which they are aware is shared by all who know him, that Sir Ernest Smith has consented to become Honorary Treasurer. Sir Ernest is a very old friend and member of the Society, and it is a privilege to have his more active participation in our work at the present time of important development.

The subscription list and statement of accounts that follow show further satisfactory progress in income, even though it is as yet far from being enough to make possible the developments, especially in the staffing of the Society at Headquarters, that are urgently needed. The increase in expenditure will also be noted, for not only have the costs of administration—our basic and unavoidable costs—sharply increased in recent years, but the scope of our work, and the activities and services that are expected of us by members and others, have also increased in a way that is both satisfactory and embarrassing. It is satisfactory because it is healthy fruit of progress, and embarrassing because only too often we are unable to do what we wish simply through lack of material resources.

All possible means for overcoming this handicap are being examined and it is confidently believed that when once the desired "lift" in income has been achieved it will make possible an expansion of activity that will readily maintain itself and perhaps lead naturally to still further development.

Our appreciation of the continued support of all our members must be expressed. If we cannot ask them to help us still more generously, we may remind them that in doing all they can to recruit new members they will be assisting us in an equally beneficial way. There must be few who could not, with a little effort, succeed in gaining at least one new subscriber.

Messrs. Abbott and Son, Chartered Accountants, of Manchester, have for many years most kindly acted as Honorary Auditors to the Society, and our thanks and appreciation for this most valued service, to which reference has not been made for some years, must be expressed.

CHARLES GANDY, *Chairman.*
E. W. SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *General Secretary.*

THE SCOTTISH DIVISION

The ever increasing membership of the Scottish Division is sufficient to indicate that our continuous efforts to direct the attention of local authorities and others to all matters pertaining to Smoke Abatement are having successful

results. Close co-operation has been established with the Local Fuel Efficiency Committee on which the Division has three representatives. Certain iron foundries and makers of domestic heating appliances have shown a spontaneous willingness to assist the Society by providing for their Research experts to address conferences of the Society and by giving serious consideration to improvements in design of their appliances suggested by our members.

The thirty-second session of the classes for stokers, firemen, etc., in boiler house practice, fuel economy and smoke abatement has commenced with the greatest number of enrolments ever recorded, viz.: Advanced Class 59, Ordinary Class 130. The fee per student is the nominal one of 3/6d. and students are recruited from Municipal Departments and industrial firms in the Glasgow area. Written examinations will be held in February next, the successful candidates receiving a certificate of efficiency recognised by employers; the more brilliant students receive also a book prize. Each year a considerable number of students sit the City and Guilds of London Institute Examination in Boiler House Practice. On a number of occasions the Silver Medal awarded by the Institute has been won by a Glasgow student.

A large local authority who are installing additional plant at a generating station have agreed to give consideration to representations made by the Division for the installation of the latest devices for reducing the emission of smoke from such stations.

JOHN TRAILL, *Hon. Secretary.*

NORTH WEST DIVISION

The year 1947 has been full of interest in the North West and will hold an honoured place in the history of the Division. The Divisional Council have been active and have shown a keen desire to make progress. The Council have met regularly each quarter, the attendance has been consistently good, and throughout, a high level of discussion has been maintained.

Various towns have been visited by the Council and an encouraging feature of this mobility has been the warmth of the welcome which has been extended and the interest in the cause of smoke abatement which has been evinced.

The Divisional Council will strive to weld together the interest of the Local Authorities and other bodies into a general determination to adopt all available measures to bring about a cleaner atmosphere at the earliest possible moment.

So far as industrial smoke is concerned, the Division is fortunate to have Regional Committees within its area; the Manchester and District Committee which revived its activities following the war has made very effective progress, whilst its counterpart in the Liverpool and West Lancs. Region is following the example.

The good relationship with the Institute of Fuel has continued and the joint meetings held have been singularly successful. Other meetings with the Institute will be welcomed as a particularly useful and informative activity.

An innovation late in the year was the holding of a joint meeting with the Institute of Housing. The subject "Domestic Heating" provided an interesting session.

The Divisional Council regard Joint Meetings with other societies as an essential feature of activity to secure a wider influence in the cause of smoke abatement.

Having regard to all the difficulties which have prevailed, 1947 has been an active year in the North West and we look forward to still greater progress in 1948.

H. MOORE, *Hon. Secretary.*

YORKSHIRE DIVISION

The first Annual General Meeting of the Yorkshire Division to be held under the newly approved Rules and Constitution took place in Leeds on the 27th November, 1947. Officers and Members of the Divisional Council were elected as follows: Mr. T. Henry Turner, M.SC. (Doncaster), Chairman; Mr. John W. Beaumont (Halifax), Deputy Chairman; Mr. James Goodfellow (Leeds), Honorary Secretary; Mr. J. MacLusky (Halifax), Mr. W. R. T. Skinner (Y. E. Power Co.), Councillor Mrs. K. L. Dell (Pudsey), Alderman W. E. Yorke, J.P. (Sheffield), Alderman F. Harper, J.P. (Rotherham), Mr. A. C. Saword (Hull), Alderman F. Hill (Batley), Councillor W. Spence (Leeds), Mr. W. E. Cooke (Bingley), Mr. T. Wilson (Rothwell), Mr. R. J. Steele (Bradford), and Dr. I. G. Davies (Leeds), members of the Divisional Council.

At the Divisional Council meeting which followed there was considerable discussion on the need for publicity with regard to the extent and effects of atmospheric pollution in the Yorkshire area. It was resolved that wherever possible the records obtained from atmospheric pollution gauges should be given to the Press. The soot deposit figures of some Yorkshire areas now appear in the newspapers. There are now 49 Atmospheric Pollution Gauges in operation and the figures recorded will be made available to all Council members.

As measurement is a fundamental factor in the recording of progress, it is proposed to hold a Technical Conference of officers responsible for the Yorkshire gauges early in the new year; the aim being to try to secure that all records are taken uniformly in accordance with the recommendations of the Special Committee of the Department of Scientific and Industrial Research.

It is proposed to hold the next meeting of the Yorkshire Division in Sheffield early in the new year.

JAMES GOODFELLOW, *Hon. Secretary.*

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1947

Year ended June 30th, 1946			Income			1947		
£	s.	d.		£	s.	d.		
2,713	4	6	Subscriptions	3,244	18	6		
78	13	9	Sale of Literature	105	2	9		
42	13	3	Repayment of Income Tax	51	4	1		
54	12	0	Conference Fees (Brighton)	372	15	0		
			Dividends from Investments, etc.—					
5	1	6	Commercial Union Assurance Co.	5	3	1		
6	11	5	London, Midland & Scottish Rly. Co.	6	17	8		
5	4	2	Post Office Savings Bank	12	12	6		
11	8	11	*Interest*—Manchester & Salford Savings Bank	11	7	6		
3	12	0	Sundry Receipts	–	–	–		
£2,921	1	6		£3,810	1	1		

Year ended June 30th, 1946			Expenditure	1947		
£	s.	d.		£	s.	d.
1,337	6	4	Salaries and Fees	1,789	0	6
265	9	2	Rent, Rates, Gas, Water and Heating	353	8	1
322	5	4	Printing and Stationery	288	10	6
70	13	5	Travelling Expenses	69	17	10
307	15	0	General Expenses, Postages and Telephone	365	19	6
–	–	–	Divisional Expenses	76	0	0
			Printing *Smokeless Air*—			
137	16	11	*Less* Receipts from Advertisements	170	13	5
75	9	3	Printing Booklet *The Smoke Problem and Science Teaching*	20	0	0
			Brighton Conference, 1946, Expenses, including Catering, Postages,			
–	–	–	Printing and Travelling	371	16	5
50	0	0	Staff Pension Scheme	53	14	2
65	11	2	Furniture and Fittings	72	7	2
288	14	11	Surplus of Income over Expenditure	178	13	6
£2,921	1	6		£3,810	1	1

Defence Bond Fund

£	s.	d.		£	s.	d.
471	12	7	Balance, June 30th, 1946	485	14	3
14	1	8	Interest	14	10	1
£485	14	3		£500	4	4

£	s.	d.		£	s.	d.
485	14	3	Balance, June 30th, 1947	500	4	4
£485	14	3		£500	4	4

Balance Sheet, June 30th, 1947

£	s.	d.		£	s.	d.	£	s.	d.
			Surplus—						
2,043	14	10	Balance as at June 30th, 1946	2,332	9	9			
288	14	11	*Add* Surplus of Income over Expenditure	178	13	6			
							2,511	3	3
–	–	–	Fees received on account—Edinburgh Conference				238	7	0
–	–	–	Subscriptions in advance				7	0	0
			Defence Bond Fund—						
485	14	3	Balance				500	4	4
£2,818	4	0					£3,256	14	7

£	s.	d.		£	s.	d.	£	s.	d.
			Investments (General)—						
			Commercial Union Assurance Co.—						
205	11	0	£25 Stock at Cost				205	11	0
			London, Midland & Scottish Railway—						
279	5	11	£313 4% Deb. Stock at Cost				279	5	11
505	4	2	Post Office Savings Bank				517	16	8
			Manchester & Salford Savings Bank—						
456	8	8	Deposit				467	16	2
							1,470	9	9
876	0	0	Cash at Bank and in Hand (General)				1,198	7	10
			Defence Bond Fund—						
480	0	0	3% Defence Bonds				480	0	0
–	–	–	2½% Defence Bonds				20	0	0
5	14	3	Cash in Hand				4	4	
							500	4	4
10	0	0	Electricity Deposit				10	0	0
–	–	–	Rent paid in advance				77	12	8
£2,818	4	0					£3,256	14	7

Audited and found correct.

August 26th, 1947.

(*Signed*) ABBOTT & SON, Chartered Accountants,
40, South King Street, Manchester, 2.

Subscriptions and Donations

for the Year ended 30th June, 1947

* Denotes Covenant Subscriber

Division 1—Scotland

	£	s.	d.
Airdrie Corporation	3	3	0
Bowies Associated Services Ltd.		17	6
Clydebank Corporation	3	3	0
Coatbridge Corporation	3	3	0
Dumbarton Corporation	2	2	0
Dunbarton County Council	4	4	0
Dundee Corporation	10	10	0
Edinburgh Corporation	15	15	0
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd.		10	6
Glasgow Corporation	26	5	0
Glasgow Women's Citizens Association	1	1	0
Grattidge, H. H.		5	0
Greenock Corporation	5	5	0
Hamilton Corporation	3	3	0
Heriot-Watt College	1	1	0
Howden, J. & Co. Ltd.	10	10	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	2	2	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	15	15	0
Maclaurin, R.		10	6
Macmillan, A. M.	1	1	0
McCallum & Craigie, Ltd.		10	6
Mill, Dr. L. M. D.	1	0	0
Millar, A. W.		5	0
Motherwell & Wishaw Corporation	4	4	0
Paisley Corporation	5	5	0
Renfrew Corporation	2	2	0
Renfrew County Council	10	10	0
Ritchie, G. B.		10	6
Roberton, Bailie Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Association of Scotland	1	1	0
Scott Park, Dr. and Mrs. S. D.		10	6
Scottish Junior Gas Association	1	1	0
Smith, Mrs. J. E.		10	6
Smith, Wm. B.	2	2	0

Division 2-Northern Ireland

Jackson, C. L.	1	1	0
Young, Miss A. C.		10	6

Division 3—North-West

Accrington High School for Girls		10	6
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.		15	6
Altrincham Gas Co.	2	2	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Ashton Bros. & Co. Ltd.	2	2	0
Ashton Gas Co.	3	3	0
Ashton-under-Lyme Electricity Dept.	2	2	0
Ashworth, Dr. J. R.		10	6
*Barash, Dr. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co. Ltd.	2	2	0
Bayes, Mrs. M.	2	2	0
Beard, E.	1	1	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons, Ltd.	10	10	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corportion	10	10	0
Bolton Corporation	10	10	0
Bootle Corporation	5	5	0
Briggs, C. Rawdon	1	0	0
British Insulated Cables Ltd.	5	5	0
Brookes, T. H.		10	6
Brown, Mrs. J. H.	1	0	0
Bulmer, H. E.		10	6
Burnley Corporation	5	5	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Carlisle Corporation	4	4	0
Chadderton U.D.C.	3	3	0
Chester Corporation	3	3	0
Chester United Gas Co.	2	2	0
Chorley Corporation	1	1	0
Chorlton, Miss M. D.		10	6
Clitheroe Corporation	2	2	0
Cooper, Miss I.	1	1	0
Cornbrook Brewery Co. Ltd.	10	10	0
Coulthard, Miss D.		10	0
Crompton U.D.C.	2	2	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Deakin, H.		10	6
Denton U.D.C.	2	2	0
Droylsden U.D.C.	3	3	0
Duguid, Mr. and Mrs. S. N.	1	1	0
Eccles Corporation	3	3	0
Edwards, Miss M.		5	0
Failsworth U.D.C.	2	2	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
FitzGerald, Miss M.		10	6
Forrester, R. E.		15	0
Gamlen, R. E.	1	1	0
*Gandy, Charles	5	0	0
Gaskell, J.		10	6
Gavaghan, Mrs. L. A.		10	6
Glossop Corporation	2	2	0
Gregory, Dr. A.		10	6
Griffiths, The Misses		10	0
Hancock, A.	1	1	0
Hardy, G. & Co.	2	2	0
Hartley, G. E.		10	6
Hay, Dr. J.	1	1	0
Hayhurst, Mr. H. and Mrs. L.	1	1	0
Herbert, Jas. L.		10	6
Herford, Miss A. C.		10	6
Hetherington, H.		10	6
Heywood Corporation Gas Dept.	1	1	0
Horwich U.D.C.	2	2	0
Hutchison, Col. R. T.		10	6
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	3	3	0
Hyde, Fred	1	1	0
Irlam U.D.C.	2	2	0
Johnson, W. A.		10	6
Johnston, S.		5	0
Kay, Miss D.		5	0
Keddie, Dr. J. T. Chalmers		10	6
Lancashire and District Coke Association	10	10	0
Lancaster Corporation	3	3	0
Lane, Mrs. W.		10	6
Langford, A. S.		10	6
Lapage, Dr. C. P.		10	6

	£	s.	d.
Lee, Sir Kenneth	1	1	0
Lees, Miss M.	1	1	0
Leigh Corporation	3	3	0
Littleborough Gas Co.	1	1	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation (1946)	26	5	0
" " (1947)	26	5	0
Liverpool Gas Co.	10	10	0
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	6
Manchester Corporation	26	5	0
Manchester Electricity Dept.	10	10	0
Manchester Gas Dept.	10	10	0
Manchester & Dist. Smoke Abatement Com.	10	10	0
Marple U.D.C.	2	2	0
Marple Gas Dept.	1	1	0
Mather, L. E.	1	1	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
Melland, Will	4	2	0
Melland, Mrs. W.	1	1	0
Metro-Vickers Elec. Co. Ltd. (1946)	6	6	0
" " " (1947)	6	6	0
Middleton Corporation	3	3	0
Middlewich Gas, Light and Coke Co.	2	2	0
Mitchell, L. A.	1	0	0
Morrison, Dr. J.	1	1	0
Mossley & Saddleworth Gas Co. Ltd.	3	3	0
Nantwich Gas Co. Ltd.	2	2	0
Nelson Corporation	3	3	0
Newton-le-Willows U.D.C.	2	2	0
Northwich U.D.C.	2	2	0
Oldham Corporation	10	10	0
Oldham Gas Dept.	5	5	0
Oliver, P. M.	1	1	0
Orr, J. H.		10	6
Packer, S. H.		10	6
Pear, Mrs. C.		10	6
Pike, Miss Irene		10	6
*Polding, W. W.		10	6
Pollard, J.	1	1	0
Pontefract Bros.	2	2	0
*Prest, J.	1	1	0
Preston Corporation	10	10	0
Preston Gas Co.	1	1	0
Priestley, I.		10	6
Radcliffe Corporation	2	2	0
Refuge Assurance Co.	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	4	4	0
Richards, Mrs. E.		5	0
Robinson, Ald. J.	1	0	0
Rochdale Corporation	5	5	0
Royton U.D.C.	1	1	0
St. Helen's Corporation	10	10	0
Sale Corporation	3	3	0
Salford Corporation	10	10	0
Salford Electricity Committee	10	10	0
Salford Gas Committee	10	10	0
Scott, Mrs. A. O.		10	0
Shaw, Mrs. M.		10	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	5	5	0
*Smith, Herbert	5	5	0
Southport Corporation	1	1	0
Stacey, F. E.		10	6
Stalybridge Corporation (1946)	2	2	0
" " (1947)	2	2	0
Stockport Corporation	10	10	0
Stretford Corporation	4	4	0
Stretford and District Gas Board	10	10	0
Swale, W. E.		10	6
Swinton and Pendlebury Corporation	3	3	0
Taylor, H. F.		12	6
Taylor, Miss M. R.		10	0
Tootal, Broadhurst, Lee & Co. Ltd.	5	5	0
Urmston U.D.C.	4	4	0
Wallasey Corporation	5	5	0
Walton, T.		10	6
Warrington Corporation	5	5	0
Wells, Dr. N. H.		5	0
West's Gas Improvements Co. Ltd.	10	10	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	5	5	0
Winsford Gas Co. Ltd.	2	2	0
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Young, J. W.	1	1	0

Division 4—North-East

	£	s.	d.
Angus, Col. E. G.	3	3	0
Baker, G. M.		10	0
Brandon and Byshottles U.D.C.	2	2	0
Caller, Dr. S.		10	6
Chester-le-Street R.D.C.	2	2	0
Chester-le-Street U.D.C.	2	2	0
Durham R.D.C.	1	1	0
Easington R.D.C.	5	5	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Hartlepool Corporation	2	2	0
Hartlepool Gas and Water Co.	5	5	0
Hexham Gas Co.	2	2	0
Houghton-le-Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	10	10	0
Longbenton U.D.C.	2	2	0
Moulsdale Williams, Mrs. A.		10	6
Newcastle and Gateshead Gas Co.	10	10	0
Newcastle upon Tyne Corporation	15	15	0
Power Gas Corporation Ltd.	5	5	0
Sedgefield R.D.C.	3	3	0
Spennymoor U.D.C.	2	2	0
Stanley, Co. Durham, U.D.C.	4	4	0
Stockton-on-Tees Corporation	5	5	0
Sunderland Corporation	10	10	0
Washington U.D.C.	2	2	0
West Hartlepool Corporation	4	4	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	1	1	0

Division 5—Yorkshire

	£	s.	d.
Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Batley Corporation	3	3	0
Bentley-with-Arksey U.D.C.	2	2	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0
Bradbury, D. J.		10	6
Bradford Corporation Health Dept.	15	15	0
Bradford Civic Society	1	1	0
Bradford Gas Dept.	10	10	0
Bray, Geo. & Co.	10	10	0
Bridlington Corporation	4	4	0
Brighouse Corporation	3	3	0
Brighouse Gas Committee	21	0	0
Brown, G. L.	2	2	0
Castleford U.D.C.	3	3	0
Clayton Sons & Co. Ltd.	2	2	0
Clegg, E.		10	6
Coke Oven Managers' Association	10	10	0
Colne Valley U.D.C. (1946)	2	2	0
" " " (1947)	2	2	0
Craddock, Mr. and Mrs. H.	1	1	0
Dearne U.D.C.	2	2	0
Dewsbury Corporation	4	4	0
Doncaster Corporation	4	4	0
Elland-cum-Greetland Gas Co.	2	2	0
Elwell, Mrs. E.		10	6
Goldstern, W.		10	6
Graucob, F. Ltd.	2	2	0
Halifax Corporation	5	5	0

	£	s.	d.
Harrogate Corporation...	3	3	0
Hebden Royd U.D.C. Gas Dept. (1946) ...	1	1	0
„ „ „ „ „ (1947) ...	1	1	0
Hemsworth R.D.C.	3	3	0
Holmes, W. C. & Co. Ltd.	10	10	0
*Holmes, W. G.	2	10	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Keighley Corporation	3	3	0
Leeds Corporation	15	15	0
Leeds Electricity Dept.	10	10	0
Leeds Gas Dept.	25	0	0
Lister, H. & Sons Ltd.	2	2	0
Marrian, Miss M. E.		10	6
Marshall, G. C.		5	0
Mexborough U.D.C.	2	2	0
Micklethwait R. G.		10	0
Mirfield U.D.C. (1946)	2	2	0
„ „ (1947)	2	2	0
Morley Corporation	3	3	0
Morton, Mrs. D. F.		10	6
Neill, W. C. H.		10	6
Nicholson, P. B.		10	6
Osborne, Dr. H.	1	1	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Redcar Corporation	2	2	0
Reeder, E. C.		10	6
*Reif, Arnold E.	1	1	0
Robertson, G. W.	1	1	0
Rothwell U.D.C.	2	2	0
Scarborough Corporation	2	2	0
Scarborough Gas Co.	3	3	0
*Severs, J. S.	1	0	0
Sheffield and District Gas Co....	10	10	0
Sheffield, Rotherham and District Smoke Abatement Committee (1946)	31	10	0
Do. (1947)	31	10	0
Shipley U.D.C.	3	3	0
Slagg, J. H.		10	0
Spenborough U.D.C.	3	3	0
Spenborough U.D.C. Gas Dept.	3	3	0
Stocksbridge U.D.C.	2	2	0
*Turner, T. Henry		10	6
Wakefield Corporation	5	5	0
Warwick, H.		10	6
Webb, R. N.	1	1	0
West Riding Group of Gas Companies ...	10	10	0
Wood, F. T.		10	6
York Corporation	5	5	0
York, Harrogate and District Group of Gas Companies	14	14	0
Yorkshire Electric Power Co.	10	10	0
Yorkshire Gas Coke Association	25	0	0

Division 6—West Midlands

Adler, Dr. S.	1	1	0
Barrow, H.		5	0
Best, J. K.		10	6
Bilston Corporation	5	5	0
Birmingham Gas Dept.	5	5	0
Brierley Hill U.D.C.	3	3	0
Burton-upon-Trent Corporation	3	3	0
Cannock District Gas Co.	3	3	0
Cannock U.D.C.	3	3	0
Coventry Corporation	10	10	0
Halesowen Corporation	3	3	0
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		10	6
Herbert, A. Ltd.	1	1	0
Hutchinson, G.H.		10	6
Iron Bridge and District Gas Co. Ltd. ...	2	2	0
Johnson, R.		10	6
Kidsgrove Gaslight Co.	3	3	0
Ludlow Union Gas Co. Ltd.	2	2	0
Malpas Gas Co. Ltd.	1	1	0
Manger's Salt Works Ltd.		10	6
Market Drayton Gas Co.	2	2	0
Meriden R.D.C....	3	3	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Newcastle-under-Lyme Corporation ...	4	4	0
Oldbury Corporation	6	6	0
Perry, W. R.		10	6
Radiation Ltd.	10	10	0
Redditch Gas Co.	10	10	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	3	3	0
Rugeley Gas Co.	2	2	0
Sedgeley U.D.C.	2	2	0
Shrewsbury Corporation	3	3	0
Shrewsbury Gas Light Co.	10	10	0
Smart, R. Cecil		5	0
Smethwick Corporation	5	5	0
Solihull Gas Co.	1	1	0
Solihull U.D.C.	4	4	0
Stafford Corporation	1	1	0
Staffordshire County Council	26	5	0
Stephens, H.	1	1	0
Stoke-on-Trent Corporation	15	15	0
Stoke-on-Trent Gas Dept.	10	10	0
Stone Gas Light and Coke Co. Ltd. ...	2	2	0
Stourbridge Gas Dept.	1	1	0
Stourport Gas Co.	3	3	0
Tamworth Gas Light and Coke Co. ...	3	3	0
Tenbury Union Gas Co. Ltd.	2	2	0
Trezise, W. E.	1	1	0
Uttoxeter Gas Works Ltd.	2	2	0
Wall, John M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Wednesbury Corporation	3	3	0
Wellington (Salop) Gas Co.	10	10	0
Wem Gas Light and Coke Co. Ltd.	1	1	0
West Bromwich Corporation	5	5	0
Whitchurch (Salop) Gas Co. Ltd.	2	2	0
Willenhall U.D.C.	3	3	0
Wolverhampton Corporation	10	10	0
Wolverhampton Gas Co.	5	5	0

Division 7—East Midlands

Beeston and Stapleford U.D.C.	3	3	0
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	2	2	0
Boston Corporation	2	2	0
Cambridge Corporation	1	1	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Cooper, L. C.	1	0	0
Coote & Warren Ltd.	1	1	0
Corby U.D.C.	2	2	0
Corrin, H. R.		10	6
Dearden, J.		10	6
Derby Corporation	1	1	0
Fry, Miss R.	1	1	0
Gainsborough U.D.C.	2	2	0
Gt. Grimsby Gas Co.	2	2	0
Gt. Yarmouth Gas Co.	4	4	0
Grimsby Corporation	5	5	0
Gurney, John	5	5	0
Hinckley U.D.C.	3	3	0
Heanor U.D.C.	2	2	0
King's Lynn Corporation	4	4	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Kirman, H. H.		10	6
Leicester Corporation	15	15	0
Leicester Gas Dept.	3	3	0
Lincoln Corporation	5	5	0
Long Eaton Gas Co.	10	10	0
Lowestoft Water and Gas Co.	2	2	0
Mansfield Corporation	3	3	0
McHugh, F. G.		5	0
Melton Mowbray Gas Light & Coke Co. Ltd.	3	3	0
Messenger, Cllr. Mrs. R., J.P.		10	6
Nottingham Corporation	15	15	0

	£	s.	d.
Pearson, Dr. S. Vere	1	10	0
Peterborough Corporation	4	4	0
Staveley U.D.C....	2	2	0
Sutton-in-Ashfield U.D.C.	3	3	0
Swadlincote District U.D.C.	2	2	0
Uppingham Gas Light and Coke Co. Ltd. ...	1	1	0
Worksop Corporation	3	3	0
Wright, J.	1	1	0

Division 8—South-West

Abercarn U.D.C.	2	2	0
Bath Corporation	4	4	0
Bideford-on-Avon Gas Co. Ltd.	2	2	0
Blaenavon U.D.C.	2	2	0
Bradshaw, Miss G.		5	0
Bristol Corporation	15	15	0
Bristol Gas Co.	5	5	0
Bromyard Gas Co. Ltd.	1	1	0
Brynmawr and Blaina Gas Co.	1	1	0
Caldicot & Dist. Gas Light & Coke Co. Ltd.	2	2	0
Campbell, Dr. A. F.	1	1	0
Campden Gas Co. Ltd.	4	4	0
Cardiff Corporation	10	10	0
Cawley, The Lady	2	0	0
Cheltenham Corporation	4	4	0
Cheltenham and District Gas Co.	10	10	0
Chepstow Gas Co.	2	2	0
Clevedon U.D.C.	2	2	0
Coulthurst, Mrs. A.		10	6
Cwmbran U.D.C.	2	2	0
Dixon, Thomas		10	6
Ebbw Vale U.D.C.	3	3	0
Exeter Gas Light and Coke Co.	10	10	0
Fry, Miss A		10	0
Gas Consolidation Ltd.	10	10	0
Gloucester Corporation	8	8	0
Gloucester Gas Light Co.	5	5	0
Hereford Corporation	3	3	0
King's College, Taunton	1	1	0
Kingswood U.D.C.	2	2	0
Leominster Gas and Coke Co.	2	2	0
Llwchwr U.D.C.	3	3	0
Merthyr Tydfil Corporation	4	4	0
Monmouth Gas & Water Works Co. Ltd. ...	2	2	0
Morgan, D. & Sons	1	1	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	3	3	0
Newport Corporation	5	5	0
Newport (Mon.) Gas Co.	10	10	0
Pontypridd U.D.C.	3	3	0
Portishead U.D.C.	2	2	0
*Rogers, P.	2	2	0
Ross Gas Co. Ltd.	2	2	0
*Sanger, Mrs. A. D.	1	0	0
Seale, Mrs. I. L.		10	6
Severn Valley Gas Corporation Ltd. ...	10	10	0
Shaftesbury, Lady		10	6
Silburn, Mrs. E.		10	6
Stroud Gas Light and Coke Co.	3	3	0
Swindon Corporation	4	4	0
Swindon United Gas Co.	5	5	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Wales and Monmouthshire Association of Gas Engineers and Managers	1	1	0
Welshpool Gas Co. Ltd.	1	1	0
Weston-super-Mare Corporation	2	2	0
Weston-super-Mare and District Gas Co. ...	1	1	0

Division 9—South-East

Acton Corporation	4	4	0
Acworth, A. W.		10	6
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	2	2	0
Adam, W. W.	1	1	0
Alston, Dr. J. M.	1	1	0
Andover Lighting & Power Co.	2	2	0
Ascot and District Gas and Electricity Co. ...	2	2	0
Ascot Gas Water Heaters Ltd.	10	10	0
Ashford, D. J.		15	0
Associated Gas and Water Undertakings Ltd.	10	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R. Ltd.	1	1	0
Bakelite Ltd.	2	2	0
Banbury Corporation	2	2	0
Banbury Gas Light and Coke Co.	1	1	0
Barber, S. S.		10	6
Barking Corporation	1	1	0
Barnes Corporation	3	3	0
Bastian & Allen Ltd.	2	2	0
Battersea Corporation	10	10	0
Beard, J. R.	1	1	0
Bennett, M. J.	2	0	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A....	1	1	0
Bexley Corporation	5	5	0
Binderman, Mrs. A.		5	0
Blacker, E.		10	6
Bognor Gas and Electricity Co.	1	1	0
Bonstow, T. L.		10	6
Bossom, A., M.P.	2	2	0
Bournemouth Corporation	2	2	0
Bournemouth Gas and Water Co.	2	2	0
Braidwood, G. L.		10	6
Brighton, Hove and Worthing Gas Co. ...	5	5	0
British Electrical and Allied Manufacturers' Association	10	10	0
British Electrical Development Association ...	100	0	0
British Gas Council	262	10	0
British Medical Association	10	10	0
Broadstairs Gas Co.	1	1	0
Buzzacott, J. O.	2	2	0
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	2	2	0
Charrington, Gardner, Locket & Co. Ltd. ...	5	5	0
Chatham Corporation	3	3	0
Chelmsford Corporation	3	3	0
Chelsea Corporation	3	3	0
Chertsey Gas Consumers Co. Ltd.	2	2	0
Chingford Corporation	1	1	0
Chislehurst and Sidcup U.D.C.	4	4	0
Chubb, Sir Lawrence	2	2	0
Clarke, D. K.		10	6
Clinch, H. G.		10	6
Coal Utilization Joint Council	10	10	0
Collier, Dr. W. A. L.		10	6
Commercial Gas Co.	3	3	0
Crayford U.D.C.	2	2	0
Crow, R. K.		10	6
Crowe, Councillor W. H.	1	1	0
Croydon Gas Co.	10	10	0
Dartford Corporation	3	3	0
Darwen, J.	1	1	0
Deal and Walmer Gas Co.	1	1	0
Dormer, A. E.		8	6
Dover Gas Co.	3	3	0
Eastbourne Gas Co.	2	2	0
East Cowes Gas Co.	1	1	0
East Ham Corporation	10	10	0
East Kent Gas Co. Ltd.	1	1	0
Edmonton Corporation	5	5	0
Edwards, Mrs. E. E.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. G.	1	11	6
Enfield U.D.C.	1	1	0
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C.	3	3	0
Finchley Corporation	4	4	0
Folkestone Gas and Coke Co.	2	2	0

	£	s.	d.
*Foss, Mrs. A.		10	6
Fox, F.		10	0
Frances, Miss J.		10	6
Fry, Miss M.		18	2
Fulham Corporation	10	10	0
*Gandy, Miss R. L.		10	6
Gas Light and Coke Co.	52	10	0
General Electric Co. Ltd.	10	10	0
George, A. K.	1	1	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Gravesend Corporation	3	3	0
Greater London Advisory Council for Smoke Abatement	2	2	0
Gower, Miss V. Leveson		5	0
Gravesend and Milton Gas Light Co. (1946)	3	3	0
" " " (1947)	2	2	0
Greenwich Corporation	2	2	0
Greenwood, T. A. S.		10	0
Guildford Corporation	5	5	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hammersmith Corporation	10	10	0
*Hampson, G. B.		10	6
Harrow U.D.C. (1946)	10	10	0
" (1947)	10	10	0
Hastings and St. Leonards Gas Co.	3	3	0
Herne Bay Gas Co.	1	1	0
Hessel Gas Co.	2	2	0
Heston and Isleworth Corporation	5	5	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	5	5	0
Hornchurch U.D.C.	3	3	0
Hornsey Gas Co.	3	3	0
Hyland, A.		10	6
Ideal Boilers & Radiators Ltd.	5	5	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	26	5	0
Institution of Heating & Ventilating Engineers	10	10	0
Jast, Mrs. L. S.		10	6
Keene, C. E.	1	0	0
Kemp, F. W.		10	6
Kensington Corporation	1	1	0
Kingston-on-Thames Corporation	3	3	0
Kirkman, Mrs.	1	1	0
Kite, A. L.		10	6
Lambeth Corporation	1	1	0
Lea Bridge and District Gas Co.	10	10	0
Leader, Dr. R. A.	1	1	0
Lee, S. A.		10	6
*Lessing, Dr. R.	1	1	0
Letchworth U.D.C.	2	2	0
Lethby, L. E.		10	6
Lewes Gas Co.	1	1	0
Lewin, Dr. O. M. S.	1	1	0
Lewisham Corporation	10	10	0
Leyton Corporation	5	5	0
Liptak Furnace Arches Ltd.	2	2	0
London and Counties Coke Association	52	10	0
London, Corporation of	26	5	0
London Electric Supply Association	10	10	0
London Power Co.	2	2	0
Low Temperature Carbonisation Ltd.	15	0	0
Luton Corporation	10	10	0
Maidenhead Corporation	3	3	0
Maidstone Gas Co.	3	3	0
Malden and Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Markham, Major S. F.	1	1	0
Matthews, Mrs. M.		10	6
McGhie, A. T. S.		10	6
*McLachlan, T.		10	6
Melland, Brian	1	1	0
Merton and Morden U.D.C.	4	4	0
Mid-Kent Gas Light and Coke Co.	1	1	0
Mitcham Corporation	2	2	0
Mitchell, Dr. C. A.		10	6
*Munro, Mrs. M. A. (1946)		10	6
" " (1947)		10	6
Nonhebel, G. F.	1	1	0
North Middlesex Gas Co.	10	10	0
Oxford Corporation	10	10	0
Oxford and District Gas Co.	2	2	0
Oxford Preservation Trust	1	1	0
Paddington Corporation	5	5	0
*Pitman, Ernest	1	0	0
Parkinson, B. R.		7	6
Pollitzer, E.	2	2	0
Portsmouth Corporation	2	2	0
Portsmouth and Gosport Gas Co.	1	1	0
Pratt, A. G.		10	6
Ratcliffe, J. S.	1	1	0
Rathbone, P. R.		10	6
Reading Corporation	10	10	0
Reigate Corporation	1	1	0
Reilly, Professor Sir Charles		10	6
Rheostatic Co. Ltd.	1	1	0
Rhondda, Lady		10	6
Richmond, A. C.		10	6
Richmond Corporation	3	3	0
Roberts, J. M.		10	6
Robinson, Mrs. B.	2	2	0
Robinson, Mrs. E.	2	2	0
Rochester, Chatham and Gillingham Gas Co.	10	10	0
Romford Corporation	2	2	0
Ryan, J.		10	6
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0
Sanitary Inspectors' Association	10	10	0
Sheppy Gas Co.	2	2	0
Shore, Lt. Col. B. C. G.		10	6
Sigma Instrument Co. Ltd.	3	3	0
Sittingbourne District Gas Co.	1	1	0
Slough Corporation	3	3	0
Slough Gas and Coke Co.	10	10	0
Smith and Wellstood Ltd.	1	1	0
Solid Smokeless Fuels Federation	10	10	0
South Suburban Gas Co.	10	10	0
South Eastern Gas Corporation	10	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
Southampton Gaslight and Coke Co.	10	10	0
Southend-on-Sea Corporation	10	10	0
Southwell, W. E.		10	6
Sturtevant Engineering Co. Ltd.	2	2	0
Sutton and Cheam Corporation	5	5	0
Taylor, Professor E. G. R.	1	1	0
Thurrock U.D.C.	4	4	0
Tiranti, Alec		5	0
Tottenham Corporation	10	10	0
Tottenham and District Gas Co.	10	10	0
Trier, F. Newton	2	2	0
Tunbridge Wells Gas Co.	3	3	0
Twickenham Corporation	5	5	0
Vaughan-Cowell, Lt. Col. A.	1	1	0
Uxbridge U.D.C.	3	3	0
Uxbridge, Maidenhead, Wycombe and District Gas Co.	10	10	0
Des Voeux, Mrs. H. A.	5	5	0
*Wadham, Miss D.	1	0	0
Wandsworth Corporation	5	5	0
Wandsworth and District Gas Co.	10	10	0
Wanstead and Woodford Corporation	4	4	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	2	2	0
Weatherfoil Heating Systems Ltd.	10	10	0
Wembley Corporation	10	10	0
West Ham Corporation	1	1	0
Westminster City Council	5	5	0
White, Dr. H. D. J.		10	6
Whitstable Gas and Coke Co. Ltd.	1	1	0
Wicksteed, J. H.		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0

	£	s.	d.
Windsor Royal Gaslight Co.	2	2	0
Women's Gas Council	10	10	0
Wood Green Corporation (1946)	2	2	0
" " " (1947)	2	2	0
Woodall-Duckham Vertical Retort Ltd ...	10	10	0

Overseas Subscriptions

	£	s.	d.
Hebley, H. F. (U.S.A.)	1	1	0
Vereeniging Town Council (S.A.)		19	4
Subscriptions and donations under 5/- ...		18	0
	£3,244	18	6

Information about the Society

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organisation, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the counties in each Division).

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organised nationally, they are entitled to participate in any activities organised by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	2 guineas
25,000 to 50,000	3 ,,
50,000 to 75,000	4 ,,
75,000 to 100,000	5 ,,
100,000 to 250,000	10 ,,
250,000 to 500,000	15 ,,
Over 500,000	25 ,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*
CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas for members appointing two Representatives ; not less than 5 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for " Smokeless Air " and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and address of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

Services to members

Information and Advice

Members may obtain from the Society, at the discretion of the Executive Council, and free of charge, advice, assistance and information on questions relating to atmospheric pollution and its prevention.

Library

The Society possesses an extensive collection of books, reports, and pamphlets, British and foreign (largely U.S.A.) on smoke abatement and related subjects. Copies may be borrowed by members or consulted at Chandos House.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on smoke prevention and related subjects. It is hoped very shortly to draw up a new Panel of Lecturers, similar to that in use before the war. This will indicate the area, subjects, types of meeting etc., with which each lecturer is concerned. Members qualified and prepared to have their names included in the Panel are invited to write to the General Secretary.

Lantern Slides and Films

The lantern slide collection is to be revised and extended and slides will be available on loan at a charge of 1d. each per lecture, plus postages. Slides for inclusion in this collection, especially of modern equipment, will be received with thanks. **Films**—The Society does not at present possess films of its own, but will be glad to suggest suitable films that may be available from other sources.

Exhibits

The pre-war exhibit service is being resumed and improved. Inquiries about the loan of exhibits, or the Society's participation in exhibitions should give the fullest details possible of what is required. In view of transport and packing difficulties material can be loaned more readily if it can be collected from and returned to Chandos House by car or van.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2/6 per set. (2) New prize-winning photo-colour poster, 30 in. x 20 in. Price 6d. each. (3) New pictorial chart primarily for school use, " These are the Things that Smoke Does," 30 in. x 20 in. Price 6d. (Other charts to follow in due course). Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes.

Photographs

A collection of photographs of smoke abatement subjects, suitable for reproduction and exhibition purposes, is being built up, and prints will be forwarded on request. Subjects required should be specified. Reproduction fees, where chargeable, at standard rates. New photographs of high pictorial quality are desired, by gift, copyright purchase, or other arrangement.

The Covenant Subscription Scheme

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognised as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9/- in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, which ever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society, to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name)..... *of*.....
(address)..... (description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of....., 194....., *or during my life which ever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this..... *day of*..... 194.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness).....
Address .....
Occupation .....

(Signature) .....

Recent Publications of the Society

Proceedings of the Edinburgh Conference, 1947. Contains in full the 20 papers read at the conference, with discussions. The main subjects are : Area Organization ; Work of Government Departments in Smoke Prevention ; Domestic Smoke Abolition ; Grit and Sulphur Problems ; Smoke and the Public Health ; Atmospheric Pollution in Great Britain. 108 pages 4s. 6d.

Proposals for New Legislation. Revised draft of the Society's proposals for new legislation (Prior Approval, etc.). 8 pages 6d.

Constitution. The new constitution of the Society in booklet form, as revised 1946 and 1947. 8 pages 2d.

New Edition in Preparation

The Law of Smoke Nuisances. By W. R. Hornby Steer, M.A., LL.B., Recorder of South Molton, Standing Counsel, N.S.A.S. This book is based on an earlier work by Randolph A. Glen, and fully covers the law as it applies in England and Wales under the Public Health Acts, 1936. In addition to Chapters on History, the Common Law, Private Houses, Trade Premises, London, Shipping, Railways, Vehicles, and Joint Action, it contains tables of statutes and cases and the relevant sections from the Public Health Acts and the Local Government Acts, 1933, in verbatim. The revised edition now being prepared will include material on the important City of London (General Powers) Act, 1946 and the Manchester Corporation Act, 1946, in each of which the new policies for smoke prevention are reflected. Cloth-bound 5s. 0d., Paper-backed 3s. 0d.

Published by Faber & Faber, Ltd.

Smoke : The Problem of Smoke and the Atmosphere. By Arnold Marsh. In its first part, this new book brings together and discusses the data on which rests the case against smoke. The second part reviews what has been done, the present position, and means for securing the progressive abolition of smoke. With full bibliography and references. 306 pages, plus 21 photographs. 21s. net. By post 21s. 6d.

(*Continued on next page*)

PUBLICATIONS—*continued from previous page*

Proceedings of the Brighton Conference, 1946. A full record of Papers and Discussions. The principal subjects covered are Smoke Prevention in New Houses, Proposals for New Industrial Legislation, and "What of the Future?" 84 pages 2s.

Smokeless Air. The Society's quarterly journal. The only magazine in the world devoted to the problems of atmospheric pollution. Gratis to members or 2s. 6d. per annum, post free.

Science Museum Exhibition Handbook. This is not only a detailed guide to the Exhibition, but, containing a series of twelve authoritative articles on the main aspects of the problem, is a permanent and useful reference book. 80 pages, medium 8vo. 6d.

Fumifugium : or the Smoke of London Dissipated. By John Evelyn. This rare and fascinating book, first published in 1661 by command of Charles II, has been republished by the Society with an introduction by Rose Macaulay. In spite of its age this indictment of the smoke evil by the author of the famous Diaries, remains true, witty and penetrating. Illustrated with original wood engravings and a portrait of Evelyn. Paper covers, 6d. Cloth-bound, 1s. 6d.

The State of the Atmosphere. A valuable and informative paper by the late Sir Frank Baines, F.R.I.B.A. With a section on the effects of smoke upon building stone. Royal 8vo, pp. 36. 6d.

Britain's Burning Shame. This pamphlet has been described in a review as "a masterpiece of modern popular propaganda." It puts the smoke problem in its simplest terms, especially as it affects the home, and is profusely illustrated. Single copies 2d. 12s. 6d. per 100.

Conference Proceedings. Copies are available at 1s. each of the full reports, containing papers and discussion of conferences held in 1932, 1934, 1936, (2s.), 1937, 1938 and 1943.

Smoke Emission Chart. A chart of tinted diagrams of different intensities of smoke, for making observations of chimney emissions. The grades shown are pale grey, grey, black and dense black. 3d. each, 2s. 6d. per dozen.

Smoke Abatement in Greater London. Report of a conference of London and Greater London Local Authorities, 1938. Including a paper read by the late Dr. J. S. Owens on "The present position and trends of Atmospheric Pollution in Greater London." 22 pages. 6d.

February, 1945, Joint Conference. Report of the joint conference with the Institute of Fuel, London, 23rd February, 1945. 8 papers and discussions, 45,000 words, 2s. 6d.

Smoke Control. Suggestions to Local Authorities on Guidance and Control in respect to new Fuel Burning Installations. 8 pages, 3d.

The Smoke Problem and Science Teaching. A booklet for teachers with notes and experiments. 8 pages, 3d.

Smokeless Zones. A booklet explaining the Society's proposals for ending the smoke nuisance by the setting up of smokeless zones. 3d.

All Post Free Reduced Prices for Quantities

Printed by The Leagrave Press Ltd., Luton.

NATIONAL SMOKE ABATEMENT SOCIETY

1949

OFFICERS * COUNCIL * DIVISIONS * LOCAL AUTHORITY MEMBERS * INFORMATION

SERVICES * 19th ANNUAL REPORT (1948) SUBSCRIPTIONS * ACCOUNTS * PUBLICATIONS

MEMBERSHIP OF THE SOCIETY

Full particulars about membership and the organization of the Society are issued separately in an *Information* folder, with membership application and other forms. If you are not yet a Member of the Society and the folder does not accompany this Report, please ask for a copy and for specimen copies of SMOKELESS AIR, the Society's quarterly magazine, and other publications.

See page 20 for general information about membership.

GUIDE TO PUBLICATIONS

A Guide to Publications on Smoke Prevention and Allied Subjects has been prepared by the Society and is issued separately. Copies may be obtained on application. It contains full particulars of all the available books, reports and pamphlets issued by the Society and other publishers, classified according to subject and with cross-references.

See page 24 for announcements on some recent publications.

National Smoke Abatement Society

1949

Contents

	Page
Officers	2
Vice-Presidents	2
Elected Members of the Council	2
Local Authority Members	3
Divisional Councils	5
19th Annual Report, for 1948	6
Accounts for year ended 30th June, 1948 ...	14
Subscriptions and Donations	15
Information about the Society	20
Services to Members	22
The Covenant Subscription Scheme	23
Publications of the Society	24

Central Offices

CHANDOS HOUSE, BUCKINGHAM GATE, WESTMINSTER, S.W.1

ABBey 1359

294/2750

National Smoke Abatement Society

President: The Rt. Hon. LORD SIMON OF WYTHENSHAWE, LL.D.

Past Presidents: SIR GEORGE ELLISTON, M.C., M.A., J.P., D.L.,
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The Rt. Hon. the Viscount Samuel, P.C., G.C.B., G.B.E.
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Alderman G. J. Timmis, O.B.E., J.P.

Elected Members of the Council

Scottish Division

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Allan W. Ritchie, M.B.E., F.R.SAN.I.
Bailie Violet Roberton, C.B.E., LL.D., J.P.

North Western Division

J. L. Burn, M.D., B.S., B.HY., D.P.H.
J. S. G. Burnett, M.D., D.P.H.
S. N. Duguid, J.P., B.SC.TECH., F.INST.F., F.R.SAN.I.
Charles Gandy, B.A.
W. L. Mather, M.C., M.A.
C. Metcalfe Brown, M.D., D.P.H.
Councillor Professor F. E. Tylecote, M.D.

North Eastern Division

Councillor W. H. Bainbridge, J.P.
Alderman P. S. Hancock, O.B.E.

Yorkshire Division

J. W. Beaumont, F.R.SAN.I., F.S.I.A.
I. G. Davies, M.D., B.S., M.R.C.P., D.P.H.
James Goodfellow, M.R.SAN.I., A.M.I.S.E.
James Law, M.R.SAN.I., M.S.I.A.

West Midlands Division

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W. R. Martine, O.B.E., T.D., M.D., D.P.H.
C. A. Stansbury, M.R.SAN.I., M.S.I.A.

East Midlands Division

F. G. McHugh, M.R.SAN.I.
A. Wade, M.B.E., F.R.SAN.I.

South Western Division

Councillor R. Francis
F. R. Jefford, F.R.SAN.I., F.S.I.A.
F. J. Redstone, F.R.SAN.I., F.S.I.A.

South Eastern Division

R. A. Baskett, B.E.M., F.S.I.A.
N. Bastable, M.R.SAN.I., F.S.I.A.
H. G. Clinch, F.R.SAN.I., F.S.I.A.
R. Lessing, PH.D., F.R.I.C., F.INST.F., M.I.CHEM.E.
G. Nonhebel, M.I.CHEM.E., F.R.I.C., F.INST.F.
A. J. Shinnie, M.D., D.P.H.
H. L. Snowden, M.S.I.A.
L. A. Stroud, D.P.A., F.R.SAN.I.
S. Swift, M.B.E.
W. Tillcock

Local Authority Members

as at 31st January, 1949

Division 1. Scotland

Aberdeen
Airdrie
Ardrossan
Ayr
Clackmannan C.C.
Clydebank
Coatbridge
Dumbarton
Dunbarton C.C.
Dundee
Dunfermline
Edinburgh
Falkirk
Glasgow
Greenock
Hamilton
Hawick
Inverness
Irvine
Jedburgh
Johnstone
Kilmarnock
Kilsyth
Kirkcaldy
Kirkintilloch
Lanark C.C.
Motherwell and Wishaw
Paisley
Perth
Port Glasgow
Renfrew C.C.
Renfrew
Rothesay
Rutherglen
Stirling C.C.

Division 3. North-West

Abram
Accrington
Atherton
Barrow-in-Furness
Blackburn
Blackpool
Bolton
Bootle
Burnley
Bury
Buxton
Carlisle
Chadderton
Cheadle & Gatley
Chester
Clitheroe
Crompton
Crosby
Darwen
Denton
Droylsden
Eccles
Failsworth
Farnworth
Glossop
Hale
Horwich
Huyton-with-Roby
Hyde
Irlam
Lancaster
Lancashire C.C.
Leigh
Littleborough
Liverpool
Macclesfield
Manchester
Marple
Middleton
Nantwich
Nelson
Newton-le-Willows
Northwich
Oldham
Ormskirk
Preston
Radcliffe
Rhyl
Rochdale
Royton
St. Helens
Sale
Salford
Stalybridge
Stockport
Stretford
Swinton and Pendlebury
Urmston U.D.C.
Wallasey
Warrington
Widnes
Wigan
Wilmslow
Workington
Wrexham

Associates

Birkenhead
Chorley
Southport
Whiston

Division 4. North-East

Berwick-upon-Tweed
Billingham
Blaydon
Brandon and Byshottles
Chester-le-Street R.D.C.
Chester-le-Street U.D.C.
Darlington
Easington
Eston
Felling
Gateshead
Hartlepool
Hetton
Houghton-le-Spring
Lanchester
Longbenton
Newburn
Newcastle-upon-Tyne
Redcar
Ryton
Sedgefield
Seaham
South Shields
Spennymoor
Stanley
Sunderland
Washington
West Hartlepool
Whickham

Associates

Durham
Whitley Bay

Division 5. Yorkshire

Adwick-le-Street
Aireborough
Batley
Bentley-with-Arksey
Bingley
Bradford
Bridlington
Brighouse
Castleford
Colne Valley
Conisborough
Dearne
Dewsbury
Doncaster
Halifax
Harrogate
Hemsworth
Huddersfield
Hull
Keighley
Leeds
Mexborough
Mirfield
Morley
Pontefract
Pudsey
Rawmarsh
Rothwell
Shipley
Stanley (Yorks.)
Stocksbridge
Swinton
Wakefield
York

Associate

Scarborough

Division 6. West Midlands

Bilston
Birmingham
Brierley Hill
Burton-upon-Trent
Cannock
Coventry
Darlaston
Dudley
Halesowen
Kidderminster
Meriden
Newcastle-under-Lyne
Nuneaton
Oldbury
Rowley Regis
Rugby
Sedgley
Shrewsbury
Smethwick
Solihull
Staffordshire C.C.
Stoke-on-Trent
Stone
Stourbridge
Walsall
Wednesbury
West Bromwich
Willenhall
Wolverhampton

Associates

Derby
Stafford

Division 7. East Midlands

Basford
Beeston & Stapleford
Blackwell
Bolsover
Boston
Chesterfield
Corby
Gainsborough
Grimsby
Heanor
Hinckley
King's Lynn
Kirkby-in-Ashfield
Leicester
Lincoln
Lowestoft
Mansfield
Market Harboro'
Nottingham
Peterborough
Rushden
Staveley
Sutton-in-Ashfield
Swadlincote
Worksop

Associate

Cambridge

Division 8. South-West

Abercarn
Abertillery
Bath
Bathavon
Bedwas & Machen
Blaenavon
Bristol
Cardiff
Cardiff R.D.C.
Cheltenham
Clevedon
Cwmbran
Ebbw Vale
Gloucester
Hereford
Kingswood
Llwchwr
Merthyr Tydfil
Mynyddislwyn
Neath
Neath R.D.C.
Newport (Mon.)
Pontypridd
Portishead
Swansea
Swindon
Thornbury R.D.C.
Tredegar
Ystradgynlais

Associate

Weston-super-Mare

Division 9. South-East

Acton
Banbury
Barking
Barnes
Battersea
Bermondsey
Bexley
Brighton
Camberwell
Chatham
Chelmsford
Chelsea
Chingford
Chislehurst & Sidcup
Crayford
Dartford
Dartford R.D.C.
East Ham
Edmonton
Erith
Eton R.D.C.
Fareham
Farnborough
Feltham
Finchley
Finsbury
Fulham
Gravesend
Guildford
Hackney
Hammersmith
Hampstead
Harrow
Heston and Isleworth
Hornchurch
Ilford
Kingston-on-Thames
Letchworth
Lewisham
Leyton
London, City of
Maidenhead
Malden & Coombe
Merton & Morden
Oxford
Paddington
Reading
Richmond
St. Albans
St. Marylebone
St. Pancras
Shoreditch
Slough
Southall
Southend-on-Sea
Southwark
Southwick
Stepney
Stoke Newington
Sutton and Cheam
Thurrock
Tottenham
Uxbridge
Walthamstow
Wanstead and Woodford
Watford
Wembley
Westminster
Willesden
Wimbledon
Windsor
Windsor R.D.C.
Associates
Bournemouth
Carshalton
Dagenham
Enfield
Gosport
Greenwich
Holborn
Kensington
Lambeth
Luton
Mitcham
Poole
Portsmouth
Reigate
Southampton
Wandsworth
West Ham
Wood Green

Scottish Divisional Council

Chairman: Allan W. Ritchie, M.B.E., F.R.SAN.I.

Hon. Secretary: John Traill, B.L.

Secretary's Office: City Chambers, Glasgow.
Central 9600
Ext. 220

North West Divisional Council

Chairman: Councillor Professor F. E. Tylecote, M.D.

Hon. Secretary: H. Moore

Secretary's Office: Public Health Dept., Town Hall, Manchester.
Central 3377
Ext. 339

Yorkshire Divisional Council

Chairman: T. Henry Turner, M.SC.

Hon. Secretary: James Goodfellow, M.R.SAN.I., A.M.I.S.I.

Secretary's Office: Public Health Dept., 12 Market Buildings, Vicar Lane, Leeds, 1.
Leeds 30211, *Ext.* 11.

North East Divisional Council

Chairman:

Hon. Secretary: William Gray, M.R.SAN.I., F.S.I.A.

Secretary's Office: Health Department, Town Hall, Newcastle-on-Tyne, 1
Newcastle 28520
Ext. 271-2.

Nineteenth Annual Report

for the Year ended 31st December, 1948

GENERAL REVIEW

It is always easier to report visible progress than the intangible changes in ideas and attitudes that may actually be of much greater importance. In the work for the prevention of atmospheric pollution there was again in 1948, as in all recent years, much useful material progress, together with many encouraging signs of developments in what could be called the mental climate of the country towards the reform. Despite some disconcerting evidence of ignorance about the waste of fuel that leads to smoke, and the waste caused by the smoke itself, it can now be said that there is among the better informed sections of the community a general acceptance of the case for more effective and far-reaching measures for smoke prevention than have so far been adopted in this country.

In the main this support is merely passive : action will be accepted, but is not demanded. A lead is called for, and above all, perhaps, actual working examples of smoke prevention in practice are now needed to demonstrate what can be done on a larger scale. The setting up of smokeless zones, the practical working of prior approval, the adoption of the new, smokeless methods of house heating are means available for such practical demonstrations. One of the Society's main functions in the near future may be to give publicity to many examples of smoke prevention in practice.

Government and Parliament

Undoubtedly the most important advance in this direction during the year was the Minister of Health's directive to Housing Authorities on the solid fuel burning appliances to be installed in new houses. The Authorities are now required to instal only the improved multi-fuel appliances that have been tested and approved. Consideration is being given to a similar control over privately built houses. This, it will be remembered, is one of the recommendations of the Fuel and Power Advisory Council made in the "Domestic Fuel Policy" Report of 1946, and was first proposed by the Society in 1942. It is important not only for its practical consequences, but for the introduction of a new principle : for the first time in this country the community, for its own sake, is exercising control (i.e. "prior approval") over the family hearth. All further steps will be simply extensions of this principle. It is for the manufacturers of such appliances, and indeed for all of us who are interested, to see that these new fires are in every way more attractive, in design and operation, than the old coal fires they will replace.

Although it is one of the influences that cannot be measured, the creation of a firmer public opinion about atmospheric pollution has undoubtedly been helped considerably by the Ministry of Fuel and Power, and especially by the Minister (Mr. Gaitskell) personally. In a number of speeches, and at the Society's Cheltenham Conference in particular, the Minister has made important references to the smoke problem and its place in the affairs of the nation. The Fuel Efficiency Division of the Ministry, in its valuable work for the better utilization of fuel, has also done much to stress the factor of smoke prevention.

In Parliament there have been many questions, and references in speeches to smoke and allied problems. Specific nuisances, instances of grit emission, generating stations, and domestic fuel appliances were the most frequent subjects in the questions asked.

Smokeless Zones and New Legislation

Now that the improved fuel burning appliances are becoming standard for

new houses, the opportunity for complete smokelessness becomes possible as soon as smokeless fuels are more freely available and their use can be made obligatory. The complete transition to smokeless fuels will take many years to accomplish, and it is clear that it will be preferable to ensure that the change is first made effective in districts where smoke prevention is most needed. This can best be achieved by the establishment of smokeless zones, which, in addition, will provide one of the most valuable forms of the practical demonstrations mentioned above. The idea of smokeless zones has made remarkable progress since it was first developed by the Society some twelve years ago, despite some unhelpful and misinformed comment. During the year excellent work has been done and plans for the actual setting up of such smokeless zones, especially in City centres, have been prepared by Authorities, many of whom have by their local acts obtained statutory powers for that purpose. Salford has arranged for smokeless zones in and around five of its post-war housing estates, and Rochdale has given notice that its central area will be made a smokeless zone within a period of five years. In Coventry, following a town's meeting, the question was referred to a plebiscite of the whole electorate, and an overwhelming majority voted in favour of the inclusion of power to create smokeless zones in the local Act put forward by that city.

A further number of local authorities have obtained powers in local Acts for the prevention of smoke by means of clauses that require new installations to be free from smoke emission and allow for their prior approval. The extension of this local legislation, the form of which does not yet appear to have been made final, is bringing closer the time for national legislation, embodying the new principles of smoke prevention—prior approval, smokeless zones, and fuel control—but further study and observation of the working of the local Acts may first be needed. The position is being kept under the closest review by the Society.

Overseas Progress

In this general review of the year it will not be out of place to refer to progress in the United States and Canada, to which frequent reference has been made in articles and paragraphs in SMOKELESS AIR. In particular we would ask our members to note the action taken under new ordinances in St. Louis, Pittsburgh, Cincinnati, and other American cities, where the principles for which we are working are being put into effect with notable success.

The Consequences of Smoke

It is in the nature of things that there should be little new evidence forthcoming about the effects of smoke, but mention may be made of the authoritative conclusions of Dr. Percy Stocks of the General Register Office that "either smokiness of atmosphere is an important factor in itself in producing cancer of the lung, or sunshine is an important factor in preventing its incidence." (Studies on Medical and Population Subjects No. 1, Regional and Local Differences in Cancer Death Rates. General Register Office. H.M.S.O., 1947. Reviewed in SMOKELESS AIR, No. 65).

Articles by authorities have also appeared in SMOKELESS AIR during the year on the effects of air pollution, including its effect upon leather.

The severe fogs of November, 1948, brought smoke, or "smog" into the news, with many Press articles and discussion on its effects and cost. Unfortunately, there is much confusion of thought as between natural fog, smoke impregnated fog, and smoke itself, and their respective consequences. It is significant to note that in the administrative county of London the number of deaths due to bronchitis rose from 73 during the week before the fog to 148 during the week of the fog. This outstanding effect upon life itself, to which attention was first drawn by an article in *The Lancet*, received hardly any comment in the general Press. A vigorous leading article in the London *Evening Standard* was a commendable exception. World-wide publicity was,

however, given to the case of Donora, in the United States, where an exceptionally dense fog occurred in still atmosphere during October, 1948, and resulted in 19 deaths and some 400 hospital cases.

It is not possible to mention in detail many other events and matters of importance to the movement that occurred during 1948. The subject was discussed at a number of conferences other than those of the Society; many local authorities have been increasingly active (cf. "Progress Reports" in the *Cheltenham Conference Proceedings*); and the Regional Committees of local authorities have continued to make good progress. Among the latter the principal development during the year was the enlargement of the Greater London Advisory Council for Smoke Abatement to become the London and Home Counties Smoke Abatement Advisory Council.

THE SOCIETY

Although no outstanding features in the Society's work or fortunes occurred during 1948, the year saw the carrying out of many useful activities and a modest but healthy increase in membership and income; 88 new members were enrolled during the year, with subscriptions amounting to £230 annually.

Over 350 local authorities are now affiliated to the Society, 323 as full members and 30 as associates.

The Survey of Atmospheric Pollution

A most important activity has been the carrying out of the first survey of the sources and incidence of atmospheric pollution on the lines proposed to and approved by the Edinburgh conference. Two sets of questionnaire forms were drawn up, the first short and general, the second more detailed. These were sent to every local authority in the country, nearly 700 of which completed and returned the forms. The analysis of the returns, even to a partial extent, has been a considerable task. An interim report on the Survey was prepared and presented to the Cheltenham conference by A. J. Cousin, and included in the *Proceedings* of that meeting. Much further information is available in the detailed replies, but in view of the work involved and other difficulties this is being extracted for specific purposes only as and when it is required.

The Cheltenham Conference

The attendance at the annual conference in Cheltenham at the end of September was a few less than the record number at Edinburgh in 1947. The most important feature was the visit of the Minister of Fuel and Power, who honoured the conference with an address of exceptional interest. New features in the programme were a series of "Progress Reports," and a "Brains Trust" session, both most successful. The generous hospitality given by the Mayor and Council of Cheltenham was greatly appreciated, as was the assistance of Officers at the Corporation in organizing the conference.

The resolutions adopted are recorded in the Proceedings, which as usual includes the papers and address in full, with reports of the discussions.

Deputation to the British Electricity Authority

Following resolutions passed at the 1946 and 1947 conference a small deputation from the Society met Lord Citrine and Mr. (now Sir John) Hacking of the British Electricity Authority in August to discuss the question of grit and sulphur emissions from generating stations. It was felt during the interview that the Authority is genuinely concerned about the problem and is doing all that is at present technically practicable to minimize grit from new stations, while continuing to investigate the more difficult and expensive problem of sulphur washing. A full report appeared in SMOKELESS AIR, No. 68 (Autumn/Winter, 1948).

President

The election of Lord Simon of Wythenshawe as President has been widely welcomed, not least by those who have been associated longest with the Society and who remember his

many services in the early days of the Smoke Abatement League of Great Britain. More recently his Chairmanship of the Fuel and Power Advisory Council which issued the *Domestic Fuel Policy* report and so strongly emphasized the need for smoke prevention and the means of attaining it, has placed the Society under a new debt of gratitude to him.

We should like to take this formal opportunity of recording on behalf of the Executive Council and the Society as a whole, our most grateful thanks and appreciation to Sir George Elliston for his very considerable services to the Society during his term of office as President. He has created many friends in the Society, and we are glad that the constitution allows him to remain an Officer as immediate Past President.

Obituary

It is with regret that we have to record the deaths, during the year, of several members and friends of the Society. The death of Sir Lawrence Chubb which occurred in February, 1948, was mentioned in the last annual report, and a tribute was there paid to his many years' association with the Society. Mr. William Nicholson, former Chief Smoke Inspector for Sheffield, died during the year, his pioneering work in smoke administration, including the remarkably successful administration he helped to create in Calcutta, and his authorship of a practical textbook "Smoke Abatement" in 1927, will be especially remembered. Mr. Philip B. Nicholson, of the Coke Oven Managers' Association, will also be remembered as a very good friend of the Society.

In December the death occurred of W. Brownhill Smith of Glasgow. Usually known as Bailie Smith, he was for many years Acting President of the Scottish Branch of the Society, and was at one time very well known for his vigorous papers on smoke abatement and the impetus he gave to the movement in its early and most difficult days. He was 85, and his interest in the Society had continued unbroken.

Another Scottish member, Robert MacLaurin, inventor of a low temperature carbonization process, and a keen advocate for a new outlook on coal carbonization also died during the year.

The Divisions

Reports from the three established Divisional Councils which follow this report will show how well they are working in their respective areas, and, it may be added, with quite modest expenditure.

Arrangements were being made, towards the end of the year, to set up divisional Councils in the North East and East Midlands areas, and it is hoped to report their inaugural meetings in the near future.

Areas remaining without Divisional organization are the West Midlands, South West and South East. Although headquarters will give every help possible in setting up and maintaining Divisional Councils the initiative must come from the members and representatives in the Divisions themselves.

Publications

Although the production of new publications and their effective distribution continues to be impeded by lack of funds and of staff, there was nevertheless issued during the year a new and revised edition of *The Law of Smoke Nuisances* by our Standing Counsel, W. R. Hornby Steer, the demand for which continues to be well maintained. There was also published a new propaganda and information pamphlet *Guilty Chimneys*, in which the case against smoke is given in a hundred quotations from authoritative writers, speakers and official reports. It includes some striking new photographs and a centre fold of diagrams and maps in colour. It is one of the most attractive of the Society's publications and has created much attention and favourable comment; 2,000 copies have already been sold or distributed, but a much wider circulation of this most valuable pamphlet is possible and has been strongly urged by all who have seen it and in the numerous press notices it has obtained.

Other publications issued during the year were the *Edinburgh Conference Proceedings* and separate reprints of several of the papers it contains; *Smokeless Air*; and the new *Guide to*

Publications on Smoke Prevention and Allied Subjects mentioned below.

Book-selling Organization

The Society has of course always sold its own publications direct, and it has now entered into an agreement with the Publishers' Association by which it is able to obtain at trade rates any publications relating to smoke and allied subjects and to sell them at the normal retail price. Not only will this enable the Society to improve its services to members and others, but it will bring in a small profit. To assist sales and to show what is available a classified list of publications has been issued and is already proving of considerable value.

Exhibitions

During 1948 material was supplied for Local Government exhibitions at the following: Dagenham, Keighley, Crayford, Morley, Aireborough, Widnes, Coventry, Brighouse, Blackburn, Berwick, Dewsbury, Burton-on-Trent, Batley, Hackney, Hazel Grove and Leeds. In addition to the above, during May, an exhibition was staged by the Society in the Library of the Royal Institution, London. The Society also took part in the International Town and Country Planning Exhibition held at Olympia in November.

Two new display panels were introduced during the year. These were designed mainly for use at Local Government exhibitions, and are designed for table display. Further panels of similar design are being prepared. It has been found that larger exhibition pieces will not stand up to the rough handling received in transit.

Photographs

In June a letter from the Society was very kindly published in most of the photographic journals, advising their readers that the Society wished to obtain more photographs of smoke emission, for which the normal reproduction fees would be paid. As a result a considerable number of photographs were, and continue to be, received, and although comparatively few are of outstanding quality it has been possible to increase our collection. The total number of different subjects now stands at about 250, and they have been classified and so arranged that examination and selection are simplified. Not only is this collection of value to the Society for its own work, but it enables the Society to meet the growing demand for loans of smoke photographs for Press reproduction, exhibition purposes and lecture illustrations.

Press Services

During the year it was arranged that the issue of Press notices, "stories" and publications for review should be prepared and distributed direct by the Society instead of through a Press agent. This has led to economies and, although it has increased the amount of office work, has been successful both in the results obtained and in contacts made with newspapers and other journals and their representatives. It must, however, be appreciated that Press publicity, which can be so valuable to the Society, is dependent above everything else on material of real news interest.

The number of Press cuttings relating to the Cheltenham conference was a record for any of the Society's activities —325. There has also been a gratifying number of appreciations of *Guilty Chimneys*, including several published in Dominion and other overseas newspapers.

Staff

Staff changes early in the year led to some difficulties and delays at headquarters, but new members have been engaged, and on the technical side and for other special purposes the Society is being assisted very helpfully indeed by Mr. A. J. Cousin, M.INST.F., formerly of the Patents Office and the Ministry of Fuel and Power.

Lack of funds, and indeed at the moment of office accommodation, prevent the further extension of staff that is undoubtedly needed. The demands on the Society tend to grow more rapidly than they can be dealt with, not so much in more apparent large-scale activities, but rather in the growth of day-to-day inquiries, requests

for advice, publications, photographs, exhibits, the approval of Press articles and so on. It is an encouraging sign that the Society should be " used " so much more, but without the funds to strengthen the small organization it is obvious that difficulties and strains will continue.

Finance

These points lead to the general question of finance. The statement of accounts accompanying this report is to June 30th, 1948, only, and during the second half of 1948 expenditure showed a material, although not yet alarming, excess over income. Efforts have been made during the year to secure new support on a really helpful scale, but results cannot at present be reported. Incidental approaches for new membership during the year led to the small net improvement mentioned in the opening paragraphs of this report, but it will be apparent that, particularly in view of the present high costs involved in all forms of publicity, and printing, etc., the Society cannot exert anything like its potential influence unless it can at least double or treble its present income.

The problem of finance continues to be the most difficult that the Society has to face and diverts attention from the primary work for which our organization exists. Advice or suggestions from members on this matter will therefore be most welcome.

CHARLES GANDY, *Chairman.*
E. W. SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *General Secretary.*

SCOTTISH DIVISION

The Scottish Division of the Society, during the year 1948, suffered serious losses by the deaths of ex-Bailie W. Brownhill Smith of Glasgow, Miss Alexia B. Jack of Edinburgh and Mr. Robert MacLaurin of Stirling, and by the resignation of ex-Provost Robert Irvine, Coatbridge. The late ex-Bailie W. Brownhill Smith was one of the founders of the Smoke Abatement League, and so great was his faith and outspokenness as to the value of the objects of the League, that it was often passed off by those who would not be convinced as fanaticism. Miss Jack represented the Scottish Council of Women Citizens' Associations, and earned the respect of the members because of the quality of quiet determination which she conveyed when in attendance at meetings of the Society. Mr. MacLaurin will always be remembered for his unfettered criticism when he suspected dilatoriness on the part of the Society or Government Departments and for the inconvenience he would suffer in order to convince the opposition of the value of his theories. The name of ex-Provost Robert Irvine of Coatbridge was first mentioned in the records in the year 1928, and appeared regularly until he found that, due to advancing age and the difficulty of attending meetings, he was forced to tender his resignation. An examination of the membership of the Division is sufficient to confirm that the unselfish devotion to the cause by those pioneers of the Society has not been in vain.

New members, including Local Authorities and other bodies, have been enrolled throughout the year, which is a sure indication that the Society is achieving one of its objects, viz. : to create by publicity and education an informed national opinion on the value and importance of unpolluted air. In other respects it is difficult to assess the practical results achieved by the Scottish Division. Certainly the conferences in recent years have been well attended, the speakers thereat being experts in their particular branches of industry, and they have been called upon to deal with many questions which showed that keen interest had been aroused in the steps taken and to be taken by industrial concerns to improve the design of all types of appliances using combustible fuel.

The courses for boiler house firemen have been, as in past years, most successful, the present roll being 146. This is due firstly to the great support given by the Corporation of Glasgow, who supply the accommodation for the classes and make a financial contribution towards the cost, and secondly to the

excellence of the lecturer who possesses not only ability, but a capacity for hard work. At the completion of each course a social evening is held, when prizes and certificates are awarded to successful students. The opportunity is then taken to stress the value of certificates in all walks of life. To extend the practical side of the course, arrangements are made for the students to visit modern plants and up-to-date local collieries so that the methods of cleaning and grading of fuels can be inspected. Film shows have become a regular feature of the classes and illustrate fuel mining processing methods, boiler house practice and the methods for the utilisation of steam and conservance of heat in process furnaces.

J. Traill, *Hon. Secretary.*

NORTH WEST DIVISION

A review of the activities in the North West Division during the year 1948 affords the Divisional Council a reasonable measure of satisfaction because it has been a year of progress and achievement.

The scope and influence of the Society has been extended for the Divisional Council has continued to meet at regular intervals at different centres within its territory. Meetings have been held at Horwich, Wigan, Urmston and Atherton by the kind invitation of those local authorities. At the conclusion of the formal business of the Council, an address on the local conditions with regard to atmospheric pollution has been given by a speaker from the locality. Discussion has been full and forthright, keen criticism being tempered with practical advice and constructive suggestion. This sharing of experience and specialised knowledge has been of great benefit to all, engendering a more faithful appreciation of the problems and difficulties. It is believed that by these means, the cause of smoke abatement is being stimulated and the reputation of the Society enhanced.

Joint meetings with other organizations have been held with great success ; in January over 300 delegates attended a joint meeting with the Institute of Fuel to discuss a paper on " District Heating." Considerable interest was shown in this topical subject and the event was one of the highlights of the year.

In May we joined forces with the Manchester and District Regional Committee to hear an address on the Fuel Situation by an official of the National Coal Board.

The Annual Meeting held in July did not attract as good an attendance as had been hoped. Those present, however, gained much useful and authoritative information from an address by Mr. Kirkman of the Regional Ministry of Fuel and Power who dealt with Domestic Fuel Problems with particular reference to the new appliances.

Whilst the work within the Division proceeds, the Divisional Council seek every opportunity to stimulate the activities of the National Society exemplified in the resolutions submitted and approved at the Cheltenham Conference. These sought the early implementation of certain of the recommendations of the Simon Committee report on Domestic Fuel Policy. It is gratifying to note that shortly after the Conference the Minister of Health took action on one of the recommendations which had been stressed by the North West Division. This success places the hallmark of progress on the year 1948 and we look forward with eager anticipation to further advancement. It would be most fitting if most of the recommendations could be put into force during Lord Simon's term of office as our President.

The North West will strive to maintain " Progress " as the keynote of its endeavours and will always be ready to give the fullest support to any project of the Society which is directed towards the fulfilment of our objectives.

H. Moore, *Hon. Secretary.*

YORKSHIRE DIVISION

Since our first Annual General Meeting in November, 1947, the Yorkshire Divisional Council has met four times, in January, April, September and October. The average attendance has been nine, which considering the distance separating the members who come from as far afield as Hull and Halifax, gives an indication of the great interest shown in our efforts to effect some improvement in the state of the atmosphere.

We have greatly regretted losing the help of Mr. W. R. T. Skinner through his removing from the Yorkshire area early in the year, but have been very fortunate in that Mr. W. M. Lapper, O.B.E., Chairman of the Yorkshire Electricity Board has succeeded him on the Council. Our ranks have been further strengthened by the co-option of Dr. R. A. Mott, F.R.I.C., F.INST.F., Superintendent for the British Coke Research Association at the Midland Coke Research Station in Sheffield, and who is also on the Committee of the Yorkshire Section of the Institute of Fuel. The Council is now representative of many Yorkshire towns and numerous civic, industrial and domestic aspects of Yorkshire life.

A joint meeting with the Yorkshire Division of the Institute of Fuel, which was also open to other interested organizations, was held in Sheffield in April. The meeting was opened by the Lord Mayor of Sheffield and the attendance was approximately 50. Two papers were given: "The Technical and Economic Aspects of the Industrial Use of Fuels," by Dr. H. Alex Fells, of the Institute of Fuel; and, "Smoke Abatement and Fuel Economy," by Mr. T. Henry Turner, the Chairman of the Yorkshire Divisional Council.

On October 15th a Technical Conference was held in Leeds under the auspices of the Divisional Council to discuss "The Measurement of Atmospheric Pollution." This Conference was arranged specially for those directly interested in obtaining measurements of smoke deposits and was attended by Dr. Meetham from the Department of Scientific and Industrial Research. The attendance of 53 was very good indeed and consisted of representatives from some 28 Local Authorities and 7 other interested organizations in the Yorkshire area. The discussion on the present methods of measuring atmospheric pollution and on the instruments now in use was exceedingly good and produced a great deal of very useful information with regard to the number of stations, types of instruments in use, and of the various difficulties met with in the work of pollution recording.

Officers and members of the Council have also been very active in meetings arranged by other organizations in the area. Our Chairman attended and spoke at a meeting held in Mexborough to protest against sulphur dioxide emission from the 125 feet chimneys of the new Mexborough Power House, and it is now promised that the chimneys will be raised to their designed height of 250 feet during 1949. Mr. Turner also took part in a meeting of the Doncaster Civic Trust to recommend that the new Doncaster Power House should be sited down-wind instead of up-wind of the town. Mr. James Law, Sheffield, and Alderman Hill, Batley, attended the second Technical Conference of Analysts on Smoke Testing held in London in March.

Although Leeds is the most convenient centre for meetings of the Divisional Council, arrangements have been made to hold meetings in other parts of the area in order to further publicize the work. Thanks are due to all members in the Yorkshire Division for their efforts in making this, our second year, so successful and our prospects for 1949 so encouraging.

JAMES GOODFELLOW, *Hon. Secretary.*

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure, Year ended June 30th, 1948

Year ended June 30th, 1947	Income		1948
£ s. d.		£ s. d.	£ s. d.
3,244 18 6	Subscriptions	3,398 4 6	
	Less Refunds	54 14 0	
			3,343 10 6
105 2 9	Sale of Literature		92 18 5
51 4 1	Repayment of Income Tax		41 15 10
372 15 0	Conference Receipts (Edinburgh)		892 7 6
(Brighton)			
—	Sundry Receipts		18 5 10
	Dividends from Investments, etc.		
5 3 1	Commercial Union Assurance Co., Ltd.		5 3 1
6 17 8	British Transport Stock		6 10 2
(L.M.S.)			
12 12 6	Post Office Savings Bank		12 18 6
11 7 6	*Interest*—Manchester and Salford Savings Bank		11 13 6
—	Excess of Expenditure over Income		204 17 5
£3,810 1 1			£4,630 0 9

Year ended June 30th, 1947	Expenditure	1948
£ s. d.		£ s. d.
1,789 0 6	Salaries and Fees	2,020 10 1
353 8 1	Rent, Rates, Gas, Water and Heating	375 3 8
288 10 6	Office Supplies and Stationery	141 1 4
69 17 10	Travelling Expenses	45 19 4
365 19 6	General Expenses, Postages and Telephone	392 17 11
76 0 0	Divisional Expenses	60 0 0
	Printing *Smokeless Air*—	
170 13 5	*Less* Receipts from Advertisements	197 19 0
20 0 0	Printing and Publishing Booklets, etc.	578 2 3
371 16 5	Edinburgh Conference, 1947, Expenses, etc.	563 19 7
(Brighton)		
53 14 2	Staff Pension Scheme	93 8 7
72 7 2	Furniture and Fittings	160 19 0
178 13 6	Surplus of Income over Expenditure	—
£3,810 1 1		£4,630 0 9

Defence Bond Fund

£ s. d.		£ s. d.
485 14 3	Balance, June 30th, 1947	500 4 4
14 10 1	Interest	14 18 11
£500 4 4		£515 3 3

£ s. d.		£ s. d.
500 4 4	Balance, June 30th, 1948	515 3 3
£500 4 4		£515 3 3

Balance Sheet, June 30th, 1948

£ s. d.		£ s. d.	£ s. d.
	Surplus—		
2,332 9 9	Balance as at June 30th, 1947	2,511 3 3	
	Less Excess of Expenditure over Income	204 17 5	
			2,306 5 10
178 13 6	*Add* Surplus, 1947		—
238 7 0	Fees received on account—Cheltenham Conference		281 18 6
(Edinburgh)			
7 0 0	Subscriptions in advance		6 0 0
	Defence Bond Fund—		
500 4 4	Balance		515 3 3
£3,256 14 7			£3,109 7 7

£ s. d.		£ s. d.	£ s. d.
	Investments (General)—		
	Commercial Union Assurance Co.—		
205 11 0	£25 Stock at Cost	205 11 0	
	British Transport Stock—		
279 5 11	£371 9s. 10d. 3% Guaranteed Stock, 1978-88	279 5 11	
(L.M.S.)			
517 16 8	Post Office Savings Bank	1,030 15 2	
	Manchester and Salford Savings Bank—		
467 16 2	Deposit	479 9 8	
			1,995 1 9
1,198 7 10	Cash at Bank and in Hand (General)		513 17 3
	Defence Bond Fund—		
480 0 0	3% Defence Bonds	480 0 0	
20 0 0	2½% Defence Bonds	35 0 0	
4 4	Cash in hand	3 3	
			515 3 3
10 0 0	Electricity Deposit		10 0 0
77 12 8	Rent paid in advance		75 5 4
£3,256 14 7			£3,109 7 7

Audited and found correct.

(*Signed*) ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

September 4th, 1948

Subscriptions and Donations

for the Year ended 30th June, 1948

* Denotes Covenant Subscriber

Division 1—Scotland

	£	s.	d.
Aberdeen Corporation	10	10	0
Airdrie Corporation	3	3	0
Ardrossan Corporation	2	2	0
Ayr Corporation	3	3	0
Bowies Associated Services Ltd.		17	6
Brown, Robert C.	1	1	0
Clackmannan County Council	3	3	0
Clydebank Corporation	3	3	0
Coatbridge Corporation	3	3	0
Currie, T. S.		10	6
Dumbarton Corporation	2	2	0
Dunbarton County Council	4	4	0
Dundee Corporation	10	10	0
Edinburgh Corporation (1947)	15	15	0
(1948)	15	15	0
Edward, J.	1	1	0
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Glasgow Corporation	26	5	0
Glasgow Women Citizens' Association	1	1	0
Grattridge, H. H.		5	0
Greenock Corporation	5	5	0
Hamilton Corporation	3	3	0
Hawick Corporation	2	2	0
Heriot-Watt College	1	1	0
Howden, J. & Co., Ltd.	10	10	0
Inverness Corporation	3	3	0
Irvine Corporation	2	2	0
Jedburgh Corporation	2	2	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	2	2	0
Kilmarnock Corporation	3	3	0
Kilsyth Corporation	2	2	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	15	15	0
Macadam, I.		10	6
Macmillan, A. M.	1	1	0
McCallum & Craigie		10	6
McKay, W. C.		10	6
Millar, A. W.		5	0
Paisley Corporation	5	5	0
Paton, T.		10	6
Perth Corporation	3	3	0
Port Glasgow Corporation	2	2	0
Renfrew Corporation	2	2	0
Renfrew County Council	10	10	0
Ritchie, G. B.		10	6
Roberton, Bailie, Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Association of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scott Park, Dr. and Mrs. S. D.		10	6
Scottish Junior Gas Association	1	1	0
Smith, Mrs. Brownhill		10	6
Smith, Wm. B.	1	1	0
*Stead, G. W.	10	0	0
Thompson, Mrs. H. I.		10	6
Waldie, J. & Sons, Ltd.	1	1	0
Wightman, Mrs. U. N.		10	6

Division 2—Northern Ireland

Young, Miss A. C.		10	0

Division 3—North-West

Abram U.D.C.	2	2	0
Accrington Corporation (1947)	2	2	0
(1948)	3	3	0
*Aitkenhead, Miss M.		15	6
Affleck & Brown Ltd.	2	2	0
Altrincham Gas Company	2	2	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous	1	1	0
Ashton Bros. & Co., Ltd.	2	2	0
Ashton Gas Company	3	3	0
Ashton-under-Lyme Electricity Dept.	2	2	0
Ashworth, J. R.		10	6
Atherton U.D.C. (1947)	2	2	0
„ „ (1948)	2	2	0
*Barash, Dr. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co., Ltd.	2	2	0
Bayes, Mrs. M.	2	2	0
Beard, E.	1	1	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, J. & Sons, Ltd.	10	10	0
Bibby, H. P.	2	0	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	10	10	0
Bolton Corporation	10	10	0
Bootle Corporation	5	5	0
Briggs, C. Rawdon	1	0	0
Brooke, T. H.		10	6
Brown, Mrs. J. H.	1	0	0
Bulmer, H. E.		10	6
Burnley Corporation	5	5	0
Burnley Corp. Gas Dept. (July, 1947)	1	1	0
„ „ „ (Nov., 1947)	1	1	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Carlisle Corporation	4	4	0
Chadderton U.D.C.	3	3	0
Cheadle and Gatley U.D.C.	3	3	0
Chester Corporation	3	3	0
Chester United Gas Co.	2	2	0
Chorley Corporation	2	2	0
Chorlton, Miss M. D.		10	6
Clitheroe Corporation	2	2	0
Cooper, Miss I.	1	1	0
Coulthard, Miss D.		10	6
Crompton U.D.C.	2	2	0
Crosby Corporation (1947)	4	4	0
„ „ (1948)	4	4	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Dean, F. H.		10	0
Droylsden U.D.C.	3	3	0
Duguid, Mr. and Mrs. S. N.	1	1	0
Eccles Corporation	3	3	0
Edwards, Miss M.		5	0
Failsworth U.D.C.	2	2	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
FitzGerald, Miss M.		10	6
Forrester, R. E.	1	0	0
Gamlen, R. E.	1	1	0
*Gandy, Charles	5	0	0
Gandy, Mrs. Charles		10	6
Gaskell, J.		10	6
Gavaghan, Mrs. L. A.		10	6
Glossop Corporation	2	2	0
Gregory, J.	1	0	0
Griffiths, The Misses		10	0
Hale U.D.C.	2	2	0
Hancock, A.	1	1	0
Hardy, G. & Co.	2	2	0
Hartley, G. E.		10	6
Hay, Dr. John	1	1	0
Hayhurst, Mr. H. and Mrs. L.	1	1	0
Herbert, J. L.		10	6

	£	s.	d.
Herford, Miss A. C.		10	6
Hetherington, H.		10	6
Heywood Corporation Gas Dept.	1	1	0
Hillier, Miss E. M.	1	1	0
Horwich U.D.C.	2	2	0
Hutchison, Col. R. (1947)		10	6
„ „ (1948)		10	6
Hyde Corporation	3	3	0
Hyde, Fred	1	1	0
Irlam U.D.C.	2	2	0
Jackson, C. L.	1	1	0
Johnson, W. A.		10	6
Johnston, S.		5	0
Kay, Miss D.		5	0
Keddie, Dr. J. T. Chalmers		10	6
Lancashire and District Coke Association	10	10	0
Lancaster Corporation	3	3	0
Lancashire County Council	26	5	0
Lane, Mrs. W.		10	6
Langford, A. S.		10	6
Lee, Sir Kenneth	1	1	0
Lees, Miss M.	1	1	0
Leigh Corporation	3	3	0
Littleborough Gas Co.	1	1	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation	26	5	0
Liverpool Gas Co.	10	10	0
Luscombe, Mr. B. L.		10	6
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	6
Manchester Corporation	26	5	0
Manchester District Assoc. of Gas Engineers—			
(1947)	2	2	0
(1948)	2	2	0
Manchester Electricity Dept.	10	10	0
Manchester Corporation Gas Dept.	10	10	0
Manchester & Dist. Smoke Abatement Com.	10	10	0
Marple Gas Dept.	1	1	0
Marple U.D.C.	2	2	0
Mather, L. E.	2	2	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
McKellen, N.	1	1	0
Melland, Will	4	2	0
Melland, Mrs. W.	1	1	0
Metro-Vickers Electricity Co., Ltd.	6	6	0
Middleton Corporation	3	3	0
Middlewich Gas, Light and Coke Co.	2	2	0
Mitchell, L. A.	1	1	0
Morrison, Dr. John	1	1	0
Mossley & Saddleworth Gas Co.	3	3	0
Nantwich Gas Co., Ltd.	2	2	0
Nantwich U.D.C. (1947)	2	2	0
„ „ (1948)	2	2	0
Nelson Corporation	3	3	0
Newton-le-Willows U.D.C.	2	2	0
Oldham Corporation	10	10	0
Oldham Gas Dept.	5	5	0
Oliver, P. M.	1	1	0
Ormskirk U.D.C.	2	2	0
Orr, J. H.		10	6
Packer, S. H.		10	6
Pear, Mrs. C.		10	6
Pike, Miss I. M.		10	6
*Polding, W. W.		10	6
Pollard, J.	1	1	0
Pontefract Bros.	2	2	0
*Prest, J.	1		0
Preston Corporation	10	10	0
Preston Gas Co.	1	1	0
Radcliffe Corporation	2	2	0
Redfern, P.		10	6
Refuge Assurance Co.	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	2	2	0
Richards, Mrs. E.		5	0
Robinson, Alderman J.	1	0	0
Rochdale Corporation	5	5	0
Royton U.D.C.	2	2	0
St. Helen's Corporation	10	10	0
Sale Corporation	3	3	0
Salford Gas Committee	10	10	0
Sandbach, Miss E. A.		10	6
Scott, Mrs. A. O.		10	0
Shaw, Mrs. M.		10	6
Simon of Wythenshawe, Lord	2	2	0
Simon Carves Ltd.	5	5	0
*Smith, Herbert	5	5	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stockport Corporation	10	10	0
Stretford Corporation	4	4	0
Stretford & District Gas Board	10	10	0
*Swale, W. E.		10	6
Swinton & Pendlebury Corporation	3	3	0
Taylor, H. F.		12	6
Taylor, Miss M. R.		10	0
Tootal, Broadhurst, Lee & Co., Ltd.	5	5	0
Unsworth, J.		10	6
Urmston U.D.C.	4	4	0
Wallasey Corporation	5	5	0
Walton, T.	1	1	0
Warrington Corporation	5	5	0
Wells, Dr. N. H.		5	0
West's Gas Improvements Co.	10	10	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	5	5	0
Wilmslow U.D.C.	2	2	0
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Young, J. W.	1	1	0

Division 4—North-East

Angus, Col. E. G.	3	3	0
Baker, G. M.		10	0
Berwick-on-Tweed Corporation	2	2	0
Billingham U.D.C.	2	2	0
Blaydon U.D.C. (1947)	3	3	0
„ „ (1948)	3	3	0
Brandon and Byshottles U.D.C.	2	2	0
Caller, Dr. S.		10	6
Chester-le-Street R.D.C.	2	2	0
Chester-le-Street U.D.C.	2	2	0
Darlington Corporation (1947)	5	5	0
„ „ (1948)	5	5	0
Durham R.D.C.	1	1	0
Easington R.D.C.	5	5	0
Eston U.D.C.	3	3	0
Felling U.D.C.	2	2	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Green, Miss E.		10	6
Hartlepool Corporation	2	2	0
Hartlepool Gas & Water Co.	5	5	0
Hetton U.D.C.	2	2	0
Hexham Gas Company	2	2	0
Houghton le Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	10	10	0
Lanchester R.D.C.	2	2	0
Newburn U.D.C. (1947)	2	2	0
„ „ (1948)	2	2	0
Newcastle and Gateshead Gas Co.	10	10	0
Newcastle-upon-Tyne Corporation	15	15	0
Power Gas Corporation Ltd.	5	5	0
Sedgefield R.D.C.	3	3	0
South Shields Corporation (1947)	10	10	0
„ „ „ (1948)	10	10	0
Stanley (Co. Durham) U.D.C.	4	4	0
Sunderland Corporation	10	10	0
Washington U.D.C.	2	2	0
West Hartlepool Corporation	4	4	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	1	1	0

Division 5—Yorkshire

Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Batley Corporation	1	1	0
Bentley-with-Arksey U.D.C.	2	2	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0

	£	s.	d.
Bradbury, D. J.		10	6
Bradford Corporation Health Dept.	15	15	0
Bradford Civic Society	1	1	0
Bradford Gas Department	10	10	0
Bray, Geo. & Co.	10	10	0
Brildington Corporation	2	2	0
Brighouse Corporation	3	3	0
Brighouse Gas Committee	10	10	0
Brown, G. L.	2	2	0
*Carpenter, V. A.		10	6
Castleford U.D.C.	3	3	0
Clayton, Son & Co., Ltd.	2	2	0
Clegg, E.		10	6
Coke Oven Managers' Association	5	5	0
Colne Valley U.D.C.	2	2	0
Conisborough U.D.C.	2	2	0
Dearne U.D.C.	2	2	0
Dewsbury Corporation	4	4	0
Doncaster Civic Trust	2	0	0
Doncaster Corporation	4	4	0
Elland-cum-Greetland Gas Co.	2	2	0
Elwell, Mrs. E.		10	6
Goldstern, W.		10	6
Goodfellow, J. (Jan.)		10	6
,, (May)		10	6
Halifax Corporation	5	5	0
Harrogate Corporation	3	3	0
Hemsworth R.D.C.	3	3	0
Holmes, W. C. & Co., Ltd.	10	10	0
*Holmes, W. G.	2	10	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Johnstone Jervis, Dr. J.		10	6
Keighley Corporation	3	3	0
Jones, G. (1947)		10	6
,, (1948)		10	6
Leeds Corporation	15	15	0
Leeds Electricity Dept.	10	10	0
Leeds Gas Department	25	0	0
Lister, H. & Sons, Ltd.	2	2	0
Marrian, Miss E. M.		10	6
Marshall, G. C.		5	0
Mexborough U.D.C	2	2	0
Micklethwait, R. G.		10	0
Mirfield U.D.C.	2	2	0
Morley Corporation	3	3	0
Morton, Mrs. D. F.		10	6
Osborne, Dr. H.	1	1	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Rawmarsh U.D.C.	2	2	0
Redcar Corporation	2	2	0
Reeder, E. C.		10	6
*Reif, A. E.	1	1	0
Robertson, G. W.	1	1	0
Rothwell U.D.C.	2	2	0
Scarborough Corporation	2	2	0
Scarborough Gas Company	3	3	0
*Severs, J. S.	1	0	0
Sheffield and District Gas Co.	10	10	0
Sheffield, Rotherham and District Smoke Abatement Committee	31	10	0
Shipley U.D C.	3	3	0
Spenborough U.D.C. Gas Dept.	3	3	0
Squires, E.		10	6
Stocksbridge U.D.C.	2	2	0
Swinton U.D.C.	2	2	0
*Turner, T. Henry		10	6
Wakefield Corporation	5	5	0
Warwick, H.		10	6
Webb, R. N.	1	1	0
West Riding Group of Gas Companies	10	10	0
West Riding of Yorkshire Regional Smoke Abatement Committee—			
(1947)	2	2	0
(1948)	2	2	0
Wood, F. T.		10	6
York Corporation	5	5	0
York, Harrogate and District Group of Gas Companies—			
(1947)	14	14	0
(1948)	14	14	0
Yorkshire Electric Power Co.	10	10	0
Yorkshire Gas Coke Association	25	0	0

Division 6—West Midlands

	£	s.	d.
Adler, Dr. S.	1	1	0
Allday, Wm. & Co., Ltd. (1947)	1	1	0
,, ,, ,, (1948)	1	1	0
Barrow, H.		5	0
Best, J. K.		10	6
Bilston Corporation	5	5	0
Birmingham Corporation	26	5	0
Birmingham Gas Dept.	5	5	0
Brierley Hill U.D.C.	3	3	0
Burton-upon-Trent Corporation	3	3	0
Cannock District Gas Co.	3	3	0
Cannock U.D.C.	3	3	0
Collier, R. D.		10	6
Coventry Corporation	10	10	0
Darlaston U.D.C.	2	2	0
Derby Corporation	1	1	0
Dudley Corporation (1947)	4	4	0
,, ,, (1948)	4	4	0
Halesowen Corporation	3	3	0
Harris & Co., Ltd.	1	11	6
Hayes, Mrs. A. L.		10	6
Herbert, A., Ltd.	1	1	0
Iron Bridge and District Gas Co.	2	2	0
Johnson, R.		10	6
Kidderminster Corporation	3	3	0
Kidsgrove Gaslight Co.	3	3	0
Ludlow Union Gas Co., Ltd.	2	2	0
Malpas Gas Co., Ltd.	1	1	0
Manger's Salt Works Ltd.		10	6
Market Drayton Gas Co.	2	2	0
Meriden R.D.C. (Jan., 1948)	3	3	0
,, ,, (June, 1948)	3	3	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Newcastle-under-Lyme Corporation	4	4	0
Oldbury Corporation	3	3	0
Radiation Ltd.	10	10	0
Redditch Gas Company	10	10	0
Rowley Regis Corporation	5	5	0
Rugeley Gas Co.	2	2	0
Rugby Corporation	3	3	0
Sedgley U.D.C.	2	2	0
Shrewsbury Corporation	3	3	0
Shrewsbury Gas Light Co.	10	10	0
Smart, R. Cecil		5	0
Smethwick Corporation	5	5	0
Solihull Gas Co.	1	1	0
Solihull U.D.C.	4	4	0
Stafford Corporation	1	1	0
Staffordshire County Council	26	5	0
Stoke-on-Trent Corporation	15	15	0
Stoke-on-Trent Gas Dept.	10	10	0
Stone Gas Light & Coke Co.	2	2	0
Stone R.D.C.	2	2	0
Stourbridge Gas Dept.	1	1	0
Stourport Gas Co.	3	3	0
Tamworth Gas Light & Coke Co.	3	3	0
Trezise, Wm. E.	1	1	0
Uttoxeter Gas Works Ltd.	2	2	0
Wall, John M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Wednesbury Corporation	3	3	0
Wellington (Salop) Gas Co.	10	10	0
Wem Gas Light & Coke Co.	1	1	0
West Bromwich Corporation	5	5	0
Whitchurch (Salop) Gas Co.	2	2	0
Willenhall U.D.C.	3	3	0
Wolverhampton Corporation	10	10	0
Wolverhampton Gas Co.	5	5	0

Division 7—East Midlands

	£	s.	d.
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	2	2	0
Boston Corporation	2	2	0
Cambridge Corporation	1	1	0
Cambridge University & Town Gas Light Co.	10	10	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Coote & Warren Ltd.	1	1	0

	£	s.	d.
Corrin, H. R.		10	6
Dearden, John		10	6
Fry, Miss A. R.	1	1	0
Great Grimsby Gas Co.	2	2	0
Great Yarmouth Gas Co.	4	4	0
Grimsby Corporation	5	5	0
Gurney, John	2	2	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	3	3	0
Ipswich Gas Light Co.	10	10	0
King's Lynn Corporation	2	2	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Kirman, H. H.		10	6
Leicester Corporation	15	15	0
Leicester Gas Dept.	3	3	0
Leominster Gas & Coke Co., Ltd.	2	2	0
Lincoln Corporation	5	5	0
Long Eaton Gas Co.	10	10	0
Lowestoft Water & Gas Co.	2	2	0
Market Harborough U.D.C.	2	2	0
McHugh, F. G.		5	0
Melton Mowbray Gas Light & Coke Co., Ltd.	3	3	0
Messenger, Cllr. Mrs. R., J.P.		10	6
Nottingham Corporation	15	15	0
Pearson, Dr. S. Vere	1	0	0
Peterborough Corporation	4	4	0
Rushden U.D.C. (1947)	2	2	0
,, ,, (1948)	2	2	0
Staveley U.D.C.	2	2	0
Swadlincote District U.D.C.	2	2	0
Uppingham Gas Light & Coke Co.	1	1	0
Winsford Gas Co., Ltd.	2	2	0
Worksop Corporation	3	3	0
Wright, J.	1	1	0

Division 8—South-West

	£	s.	d.
Abercarn U.D.C.	2	2	0
Abertillery U.D.C.	3	3	0
Bath Corporation	4	4	0
Bidford-on-Avon Gas Co., Ltd.	1	1	0
Blaenavon U.D.C.	2	2	0
Bradshaw, Miss G.		5	0
Bristol Corporation	15	15	0
Bristol and District Regional Smoke Abatement Council—			
(1947)	2	2	0
(1948)	2	2	0
Bristol Gas Company	5	5	0
Bromyard Gas Co., Ltd.	1	1	0
Brynmawr and Blaina Gas Co.	1	1	0
Caldicot and District Gas Light & Coke Co., Ltd.	2	2	0
Campbell, Dr. A. F.	1	1	0
Campden Gas Co., Ltd.	2	2	0
Cardiff Corporation	10	10	0
Cardiff Gas Light & Coke Co.	10	10	0
Cardiff R.D.C.	3	3	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	4	4	0
Cheltenham and District Gas Co.	10	10	0
Chepstow Gas Co.	2	2	0
Clevedon U.D.C.	2	2	0
Coulthurst, Mrs. A.		10	6
Cwmbran U.D.C.	2	2	0
Ebbw Vale U.D.C.	3	3	0
Exeter Gas Light & Coke Co.	10	10	0
Fry, Miss A.		10	6
Gas Consolidation Ltd.	10	10	0
Gloucester Corporation	4	4	0
Gloucester Gas Light Company	5	5	0
Hereford Corporation	3	3	0
Merthyr Tydfil Corporation	4	4	0
Monmouth Gas & Water Works Co., Ltd.	2	2	0
Morgan, D. & Sons	1	1	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	3	3	0
Newport Corporation	5	5	0
Newport (Mon.) Gas Co.	10	10	0
Pontypridd U.D.C.	3	3	0
Portishead U.D.C.	2	2	0
*Rogers, P.	2	2	0
*Sanger, Mrs. A. D.	1	0	0
Seale, Mrs. I. L.		10	6
Severn Valley Gas Corp. Ltd.	10	10	0
Shaftesbury, Lady		10	6
Silburn, Mrs. E.		10	6
Stroud Gas Light & Coke Co.	3	3	0
Swansea Corporation	2	2	0
Swindon Corporation	4	4	0
Swindon United Gas Company	5	5	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Wales and Monmouthshire Association of Gas Engineers and Managers	1	1	0
Welshpool Gas Co., Ltd.	1	1	0
Weston-super-Mare Corporation	2	2	0
Weston-super-Mare and District Gas Company	1	1	0

Division 9—South-East

	£	s.	d.
Acton Corporation	4	4	0
Acworth, A. W.		10	6
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	2	2	0
Alston, Dr. J. M.	1	1	0
Andover Lighting and Power Co.	2	2	0
Ascot District Gas and Electricity Co.	2	2	0
Ascot Gas Water Heaters Ltd.	10	10	0
Associated Gas and Water Undertakings Ltd.	10	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R., Ltd.	1	1	0
Bakelite Ltd.	2	2	0
Banbury Borough Council	2	2	0
Banbury Gas Light & Coke Co.	1	1	0
Barber, S. S.		10	6
Barking Corporation (1947)	4	4	0
,, ,, (1948)	5	5	0
Barnes Corporation	3	3	0
Bastian & Allen Ltd.	2	2	0
Battersea Corporation	10	10	0
Beard, J. R.	1	1	0
Bennett, M. J.	1	0	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A.	1	1	0
Bexley Corporation	5	5	0
Binderman, Mrs. A.		5	0
Blacker, E.		10	6
Bligh, Mrs. M. F.		10	0
Bognor Gas & Electricity Co.	1	1	0
Bonston, T. L.		10	6
Bournemouth Corporation	2	2	0
Bournemouth Gas & Water Co.	2	2	0
Braidwood, G. L.		10	6
Brighton Corporation	10	10	0
Brighton, Hove and Worthing Gas Company	5	5	0
British Electrical and Allied Manufacturers' Association	10	10	0
British Electrical Development Association	100	0	0
British Gas Council	262	10	0
British Medical Association	10	10	0
Broadstairs Gas Company	1	1	0
Buzzacott, J. O.	2	2	0
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	2	2	0
Charrington, Gardner, Locket & Co., Ltd.	5	5	0
Chatham Corporation	3	3	0
Chelmsford Corporation	3	3	0
Chelsea Corporation	3	3	0
Chertsey Gas Consumers' Co., Ltd.	2	2	0
Chingford Corporation (1947)	1	1	0
,, ,, (1948)	2	2	0
Chislehurst and Sidcup U.D.C.	4	4	0
Clarke, D.K.		10	6
Clinch, H. G.		10	6
Coal Utilization Joint Council	10	10	0
Collier, Dr. W. A. L.		10	6
Commercial Gas Company	3	3	0
Crayford U.D.C.	2	2	0
Crow, R. K.		10	6
Croydon Gas Company	10	10	0
Dagenham Corporation	2	2	0
Dartford Corporation	3	3	0

	£	s.	d.
Dartford R.D.C.	3	3	0
Darwen, J.	1	1	0
Deal and Walmer Gas Company	1	1	0
Dormer, A. E.		8	6
Dover Gas Company	3	3	0
Eastbourne Gas Company	2	2	0
East Cowes Gas Company	1	1	0
East Ham Corporation	10	10	0
East Kent Gas Company	1	1	0
Edmonton Corporation	5	5	0
Edwards, Mrs. E. E.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. G.	1	11	6
Enfield U.D.C.	1	1	0
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C.	3	3	0
Finchley Corporation	4	4	0
Finsbury Corporation (Nov.)	4	4	0
„ „ (Dec.)	4	4	0
Folkestone Gas & Coke Company	2	2	0
*Foss, Mrs. A.		10	6
Fox, F.		10	0
Fry, Miss M.	1	0	0
Fulham Corporation	10	10	0
Gandy, Miss R.		10	6
Gas Light & Coke Company	52	10	0
General Electric Co., Ltd.	10	10	0
Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Gosport Corporation	2	2	0
Graucob, F. Ltd.	2	2	0
Gravesend Corporation	3	3	0
Gravesend and Milton Gas Light Co.	2	2	0
Greenwich Corporation	2	2	0
Greenwood, T. A. S.		10	0
Guildford Corporation	5	5	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hammersmith Corporation	10	10	0
*Hampson, G. B.		10	6
Hampstead Corporation	5	5	0
Harrow U.D.C.	10	10	0
Hastings and St. Leonards Gas Co.	3	3	0
Herne Bay Gas Company	1	1	0
Hessle Gas Company	2	2	0
Heston and Isleworth Corporation	5	5	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	5	5	0
Hornchurch U.D.C.	3	3	0
Hyland, A.		10	6
Ideal Boilers and Radiators Ltd.	5	5	0
Ilford Corporation	10	10	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	26	5	0
Institution of Heating & Ventilating Engineers	10	10	0
Jast, Mrs. L. S.		10	6
Kemp, F. W.		10	6
Kensington Corporation	1	1	0
Kingston-upon-Thames Corporation	3	3	0
Kirkman, Mrs.	1	1	0
Kisbee, R. H.		10	6
Lambeth Corporation	1	1	0
Lea Bridge and District Gas Company	10	10	0
Lee, S. A.		10	6
*Lessing, Dr. R.	1	1	0
Letchworth U.D.C.	2	2	0
Leveson Gower, Miss V.		5	0
Lewin, Dr. O. M. S.	1	1	0
Lewisham Corporation	10	10	0
Leyton Corporation	5	5	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S. (1947)	1	0	0
„ (1948)	1	0	0
London and Counties Coke Association	52	10	0
London, Corporation of	26	5	0
London Electricity Supply Association	2	12	6
London Power Co.	2	2	0
Low Temperature Carbonisation Ltd.	15	15	0
Luton Corporation	2	2	0
McGhie, A. T. S.		10	6
Maidenhead Corporation	3	3	0
Maidstone Gas Company	3	3	0
Malden and Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Markham, Major S. F.	1	1	0
Mathias, J.	1	1	0
Matthews, Mrs. M.		10	6
*McLachlan, T.		10	6
Melland, B.	1	1	0
Merton and Morden U.D.C.	4	4	0
Mid-Kent Gas Light & Coke Co.	1	1	0
Mitcham Corporation	2	2	0
Morgan, Miss G.		10	6
Nonhebel, G.	1	1	0
North Middlesex Gas Co.	10	10	0
Oxford Corporation	10	10	0
Oxford and District Gas Co.	2	2	0
Oxford Preservation Trust	1	1	0
Paddington Corporation	5	5	0
Parkinson, B. R.		7	6
*Pitman, E.	1	0	0
Portsmouth Corporation	2	2	0
Portsmouth and Gosport Gas Co.	1	1	0
Pratt, A. G.		10	6
Ratcliffe, J. S.	1	1	0
Rathbone, P. R.		10	6
Reading Corporation	10	10	0
Reigate Corporation	1	1	0
Rheostatic Co., Ltd.	1	1	0
Rhondda, Lady		10	6
Richards, Dr. H.		10	6
Richmond, A. C.		10	6
Richmond Corporation	3	3	0
Roberts, J. M.		10	6
Robinson, Mrs. E.	2	2	0
Rochester, Chatham and Gillingham Gas Co.	10	10	0
Ryan, J.		10	6
St. Albans Corporation	3	3	0
St. Marylebone Corporation	5	5	0
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0
Sanitary Inspectors' Association	10	10	0
Sempill, Lord	1	1	0
Sempill, Lady	1	1	0
Sheppey Gas Company	2	2	0
Shore, Lt.-Col. B. C. G.		10	6
Shoreditch Corporation (1947)	3	3	0
„ „ (1948)	3	3	0
Sittingbourne District Gas Co.	1	1	0
Slough Corporation	3	3	0
Smith, D. V. H.	1	1	0
Smith, Sir Ernest	2	2	0
Smith & Wellstood Ltd.	1	1	0
Solid Smokeless Fuels Federation	10	10	0
South Eastern Gas Corporation Ltd.	10	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
Southampton Gas Light & Coke Co.	10	10	0
Southend-on-Sea Corporation	10	10	0
South Suburban Gas Company	10	10	0
Southwark Corporation (1947)	5	5	0
„ „ (1948)	5	5	0
Southwell, W. E.		10	6
Southwick U.D.C.	2	2	0
Stepney Corporation	4	4	0
Sturtevant Engineering Co., Ltd.	2	2	0
Sutton and Cheam Corporation (1947)	5	5	0
„ „ „ (1948)	5	5	0
Thurrock U.D.C.	4	4	0
Tiranti, A.		5	0
Tottenham and District Gas Co.	10	10	0
Trier, F. Newton	1	1	0
Uxbridge, Maidenhead, Wycombe and District Gas Co.	10	10	0
Uxbridge U.D.C.	3	3	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
*Wadham, Miss D.	1	0	0
Walthamstow Corporation	10	10	0
Wandsworth and District Gas Co.	10	10	0
Wandsworth Corporation	5	5	0

	£	s.	d.
Wanstead and Woodford Corporation ...	4	4	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	2	2	0
Wembley Corporation	10	10	0
Westminster City Council	15	15	0
Whitstable Gas and Coke Co.	1	1	0
White, Dr. H. D. J.		10	6
Wicksteed, J. H.		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0
Windsor R.D.C.	2	2	0
Women's Advisory Council on Solid Fuel ...	5	5	0
Women's Gas Council	10	10	0
Women's Gas Council, Cheltenham		10	0
Woodall-Duckham Vertical Retort Ltd. ...	10	10	0

Overseas Subscriptions

	£	s.	d.
Hebley, H. F. (U.S.A.)	1	5	0
Jaffray, F. A. (Southern Rhodesia)	2	10	0
Keene, C. E. (Jersey, C.I.)	1	1	0
Vereeniging Town Council (S.A.)	1	1	0
Subscriptions and donations under 5s. ...		8	6
	£3398	4	6

Information about the Society

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the counties in each Division).

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organised nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	2 guineas
25,000 to 50,000	3 „
50,000 to 75,000	4 „
75,000 to 100,000	5 „
100,000 to 250,000	10 „
250,000 to 500,000	15 „
Over 500,000	25 „

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas for members appointing two Representatives ; not less than 5 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for " Smokeless Air " and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

Services to Members

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available on loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to Chandos House by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) New prize-winning photo-colour poster, 30 in. x 20 in. Price 6d. each. (3) New pictorial chart primarily for school use, " These are the Things that Smoke Does," 30 in. x 20 in. Price 6d. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

The Covenant Subscription Scheme

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognised as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society, to the effect that the subscription has in fact been paid and has been drawn from his "general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name)..... *of*.....
(address)..... (description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of....., 194....., *or during my life whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of..... 194.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....

(Signature) .....

PROCEEDINGS OF THE CHELTENHAM CONFERENCE 1948

"Full of valuable information . . . much in the report makes one hopeful."—*Architect and Building News.*

3*s.* 6*d.* *By post*, 3*s.* 8*d.*

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"Not merely a formidable case against coal smoke but also a most interesting collection of historic and scientific facts relating to the burning of raw coal and its consequences."—*Yorkshire Post.*

"This small but admirable book."—*Aeronautics.*

1*s.* *By post*, 1*s.* 2*d.*

The LAW of SMOKE NUISANCES

W. R. Hornby Steer

"Those who are desirous of becoming conversant with the problems of the law of smoke abatement could do no better than peruse this splendid book, which deals with the history of the subject, with common law as well as statute law, with shipping, railways and joint action of local authorities."—*Municipal Engineering.*

Cloth, 5*s.*; *paper*, 3*s.*
By post, 5*s.* 3*d.* *and* 3*s.* 2*d.*

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THE PROBLEM OF COAL AND THE ATMOSPHERE

Arnold Marsh

"The most complete popular account of the smoke problem we have yet seen. The case he makes out for immediate, though gradual and cumulative, action cannot be neglected in any complete policy for the ordered exploitation of our fuel resources."—*Manchester Guardian.*

"Here is the complete picture. Admirably produced with appendices and a full bibliography, *Smoke* is illustrated with a host of quite exceptional photographs."—*Gas Journal.*

(Published by Faber & Faber Ltd.)

21*s.* *By post*, 21*s.* 6*d.*

Printed by The Leagrave Press Ltd., Luton and London


The Divisions of the Society
1
SCOTLAND
2
NORTHERN IRELAND
3
NORTH WEST
4
NORTH EAST
5
YORKSHIRE
6
WEST MIDLANDS
7
EAST MIDLANDS
8
SOUTH WEST
9
SOUTH EAST

NATIONAL SMOKE ABATEMENT SOCIETY

1950

OFFICERS • COUNCIL • DIVISIONS • LOCAL AUTHORITY MEMBERS • INFORMATION

SERVICES • 20th ANNUAL REPORT (1949) SUBSCRIPTIONS • ACCOUNTS • PUBLICATIONS

MEMBERSHIP OF THE SOCIETY

Full particulars about membership and the organization of the Society are issued separately in an *Information* folder, with membership application and other forms. If you are not yet a Member of the Society and the folder does not accompany this Report, please ask for a copy and for specimen copies of SMOKELESS AIR, the Society's quarterly magazine, and other publications.

See page 20 for general information about membership.

GUIDE TO PUBLICATIONS

A Guide to Publications on Smoke Prevention and Allied Subjects (1950) has been prepared by the Society and is issued separately. Copies may be obtained on application. It contains full particulars of all the available books, reports and pamphlets issued by the Society and other publishers, classified according to subject and with cross-references.

See page 24 for announcements on some recent publications.

National Smoke Abatement Society

1950

Contents

	Page
Officers	2
Vice-Presidents	2
Elected Members of the Council	2
Local Authority Members	3
Divisional Councils	5
20th Annual Report for 1949	6
Divisional Council Reports for 1949	9
Accounts for year ended 30th June, 1949 ...	14
Subscriptions and Donations	15
Information about the Society	20
Services to Members	22
The Covenant Subscription Scheme	23
Map, the Divisions of the Society	Inside back cover

Central Offices

CHANDOS HOUSE, BUCKINGHAM GATE, WESTMINSTER, S.W.1

ABBey 1359

National Smoke Abatement Society

President: DAME VERA LAUGHTON MATHEWS, D.B.E.

Past Presidents:

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Bailie Violet Roberton, C.B.E., LL.D., J.P.

North Western Division

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S. N. Duguid, J.P., B.SC.TECH., F.INST.F., F.R.SAN.I.
Charles Gandy, B.A.
W. L. Mather, M.C., M.A.
C. Metcalfe Brown, M.D., D.P.H.
Councillor Professor F. E. Tylecote, M.D.

North Eastern Division

Alderman J. Chapman
Alderman P. S. Hancock, O.B.E.

Yorkshire Division

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I. G. Davies, M.D., B.S., M.R.C.P., D.P.H.
James Goodfellow, M.R.SAN.I., A.M.I.S.E.
James Law, M.R.SAN.I., M.S.I.A.

West Midlands Division

G. W. Farquharson, M.S.I.A.
W. R. Martine, O.B.E., T.D., M.D., D.P.H.
C. A. Stansbury, M.R.SAN.I., M.S.I.A.

East Midlands Division

F. G. McHugh, M.R.SAN.I.
A. Wade, M.B.E., F.R.SAN.I.

South Western Division

G. W. Dhenin, M.S.I.A., M.R.SAN.I.
F. R. Jefford, F.R.SAN.I., F.S.I.A.
F. J. Redstone, F.R.SAN.I., F.S.I.A.

South Eastern Division

R. A. Baskett, B.E.M., F.S.I.A.
N. Bastable, M.R.SAN.I., F.S.I.A.
H. G. Clinch, F.R.SAN.I., F.S.I.A.
S. R. Daly, B.SC., D.P.A., F.A.L.P.A.
R. Lessing, PH.D., F.R.I.C., F.INST.F., M.I.CHEM.E.
J. J. Matthews, M.R.SAN.I.
G. Nonhebel, M.I.CHEM.E., F.R.I.C., F.INST.F.
A. J. Shinnie, M.D., D.P.H.

Affiliated Local Authorities

as at 17th February, 1950

Division 1 Scotland

Members

Aberdeen
Airdrie
Ardrossan
Ayr
Clackmannan C.C.
Clydebank
Coatbridge
Dumbarton
Dumbarton C.C.
Dundee
Dunfermline
Edinburgh
Falkirk
Glasgow
Greenock
Hamilton
Hawick
Inverness
Irvine
Jedburgh
Johnstone
Kilmarnock
Kilsyth
Kirkcaldy
Kirkintilloch
Lanark C.C.
Motherwell and Wishaw
Paisley
Perth
Port Glasgow
Renfrew
Renfrew C.C.
Rothesay
Rutherglen
Stirling C.C.
West Lothian C.C.

Division 3 North West

Members

Abram
Accrington
Ashton-under-Lyne
Atherton
Barrow-in-Furness
Blackburn
Blackpool
Bolton
Bootle
Burnley
Bury
Buxton
Carlisle
Chadderton
Cheadle & Gatley
Chester
Church
Clitheroe
Crewe
Crompton
Crosby
Darwen
Denton
Droylsden
Eccles
Failsworth
Farnworth
Glossop
Hale
Hazel Grove and Bramhall
Horwich
Huyton-with-Roby
Hyde
Irlam
Lancashire C.C.
Lancaster
Leigh
Littleborough
Liverpool
Longdendale
Macclesfield
Manchester
Marple
Middleton
Nantwich
Nelson
Newton-le-Willows
Northwich
Oldham
Ormskirk
Preston
Radcliffe
Rawstenstall
Rhyl
Rochdale
Royton
St. Helens
Sale
Salford
Stalybridge
Stockport
Stretford
Swinton and Pendlebury
Urmston
Wallasey
Warrington
Widnes
Wigan
Wilmslow
Workington
Wrexham
Wrexham R.D.C.

Associates

Birkenhead
Southport
Whiston

Division 4 North East

Members

Ashington
Bedlingtonshire
Berwick-on-Tweed
Billingham
Blaydon
Brandon and Byshottles
Chester-le-Street R.D.C.
Chester-le-Street U.D.C.
Consett
Darlington
Durham C.C.
Durham R.D.C.
Easington
Eston
Felling
Gateshead
Gosforth
Hartlepool
Hebburn
Hetton
Houghton-le-Spring
Jarrow
Lanchester
Longbenton
Middlesbrough
Newburn
Newcastle-upon-Tyne
Northumberland C.C.
Prudhoe
Redcar
Ryton
Seaham
Sedgefield
South Shields
Stanley
Sunderland
Wallsend
Washington
West Hartlepool
Whickham

Associates

Whitley Bay

Division 5 Yorkshire

Members

Adwick-le-Street
Aireborough
Batley
Bentley-with-Arksey
Bingley
Bradford
Bridlington
Brighouse
Castleford
Colne Valley
Conisbrough
Dearne
Denby Dale
Dewsbury
Doncaster
Doncaster R.D.C.
Halifax
Harrogate
Hemsworth
Holmfirth

Huddersfield
Hull
Keighley
Leeds
Mexborough
Mirfield
Morley
Pontefract
Pudsey
Queensbury and Shelf
Rawmarsh
Rothwell
Sheffield, Rotherham & District Smoke Abatement Committee
Shipley
Stanley (Yorks.)
Stocksbridge
Swinton
Wakefield
Wombwell
York

Associates

Scarborough

Division 6 West Midlands

Members

Birmingham
Brierley Hill
Burton-upon-Trent
Cannock
Coventry
Darlaston
Dudley
Halesowen
Kidderminster
Meriden
Newcastle-under-Lyne
Nuneaton
Oldbury
Rowley Regis
Rugby
Sedgley
Shrewsbury
Smethwick
Solihull
Staffordshire C.C.
Stoke-on-Trent
Stone
Stourbridge
Tipton
Walsall
Warwickshire C.C.
Wednesbury
West Bromwich
Willenhall
Wolverhampton

Associate

Stafford

Division 7 East Midlands

Members

Basford
Beeston and Stapleford
Blackwell
Bolsover
Boston
Chesterfield
Corby
Derby C.C. (Co. Planning Cttee. —Corporate)
Dronfield
Gainsborough
Great Yarmouth
Grimsby
Heanor
Hinckley
King's Lynn
Kirkby-in-Ashfield
Leicester
Lincoln
Long Eaton
Louth
Lowestoft
Mansfield
Mansfield Woodhouse
Market Harboro'
Newark
Nottingham
Peterborough
Ripley
Rushden
Southwell
Staveley
Sutton-in-Ashfield
Swadlincote
West Bridgford
Worksop

Associate

Cambridge
Derby

Division 8 South West

Members

Abercarn
Abertillery
Bath
Bathavon
Bedwas & Machen
Blaenavon
Bristol
Cardiff
Cardiff R.D.C.
Cheltenham
Clevedon
Cwmbran
Ebbw Vale
Gellygaer
Gloucester
Kingswood
Llantrisant and Llantwit Fadre
Merthyr Tydfil
Mynyddislwyn
Neath
Neath R.D.C.
Newport (Mon.)
Pontypridd
Portishead
Swindon
Thornbury
Tredegar
Warmley
Ystradgynlais

Associates

Poole
Swansea
Weston-super-Mare

Division 9 South East

Members

Acton
Banbury
Barking
Barnes
Battersea
Bedfordshire C.C.
Bermondsey
Bexley
Brighton
Camberwell
Chatham
Chelmsford
Chelsea
Chingford
Chislehurst and Sidcup
Crayford
Dartford
Dartford R.D.C.
East Ham
Eastleigh
Edmonton
Erith
Eton
Fareham
Farnborough
Feltham
Finchley
Finsbury
Fulham
Gravesend
Guildford
Hackney
Hammersmith
Hampstead
Harrow
Heston and Isleworth
Hornchurch
Ilford
Kingston-on-Thames
Letchworth
Lewisham
London, City of
Maidenhead
Malden and Coombe
Merton & Morden
Oxford
Paddington
Richmond
Rochester
St. Albans
St. Marylebone
Shoreditch
Slough
Southall
Southend-on-Sea
Southwark
Southwick
Stepney
Stoke Newington
Sutton & Cheam
Thurrock
Tottenham
Uxbridge
Walthamstow

Wanstead and Woodford
Watford
Wembley
Westminster
Willesden
Wimbledon
Windsor
Windsor R.D.C.

Associates

Bournemouth
Carshalton
Dagenham
East Sussex C.C.
Enfield
Gosport
Greenwich
Holborn
Kensington
Kent C.C.
Lambeth
Leyton
Luton
Mitcham
Portsmouth
Reigate
St. Pancras
Southampton
Wandsworth
West Ham
Wood Green

Scottish Divisional Council

Chairman: Allan W. Ritchie, M.B.E., F.R.SAN.I.

Hon. Secretary: John Traill, B.L.

Secretary's Office: City Chambers, Glasgow.
Central 9600
Ext. 220

North East Divisional Council

Chairman: Alderman J. Chapman

Hon. Secretary: William Gray, M.R.SAN.I., F.S.I.A.

Secretary's Office: Health Department, Town Hall, Newcastle-on-Tyne, 1
Newcastle 28520
Ext. 271-2

Yorkshire Divisional Council

Chairman: T. Henry Turner, M.SC.

Hon. Secretary: James Goodfellow, M.R.SAN.I., A.M.I.S.I.

Secretary's Office: Public Health Dept., 12 Market Buildings, Vicar Lane, Leeds, 1.
Leeds 30211, *Ext.* 11

North West Divisional Council

Chairman: Alderman Professor F. E. Tylecote, M.D.

Hon. Secretary: H. Moore

Secretary's Office: Public Health Dept., Town Hall, Manchester.
Central 3377
Ext. 339

East Midlands Division

Hon. Secretary: Alfred Wade, M.B.E., F.R.SAN.I.

Secretary's Office: Sanitary Inspectors' Office, 50 Shakespeare Street, Nottingham.
Nottingham 40584

Twentieth Annual Report

for the Year ended 31st December, 1949

GENERAL REVIEW

1949 may be regarded as a year of consolidation rather than one marked by important milestones. Nevertheless, in the field of domestic smoke prevention especially there have been many signs of progress towards that change in public opinion and habits that will eventually lead to the relegation of the old-fashioned coal-burning grate and range from the home to the museum. The new appliances are now more easily obtained and are steadily becoming more familiar and popular. The value of the efficient closable stove, which up to recently found little public favour, is especially being more and more appreciated. Although in many cases bituminous coal continues to be used in appliances more suitable for smokeless fuels, the latter are now in better supply than at any time since 1939, and the announcement at the end of the year that coke was being taken off the ration was greatly welcomed. Much remains to be done, however, to encourage the use of coke and other smokeless fuels, and questions of price and quality need to be considered.

In the industrial field little change has been noted, and many varied complaints reach the Society or are noted in Press reports. Railways, collieries, cement works, power stations (in respect of grit), colliery spoilbanks, and many smaller types of plant, such as laundries, are mentioned. Although the poorer quality of coal available is frequently given as the reason for smoke or grit emission it is frequently not the only or the chief factor.

The economic case against smoke has been further strengthened during the year by the publication of the Fuel Research Technical Paper No. 55, on "The Effect of Certain Factors on the Efficiency of a Hand-fired, Natural Draught, Lancashire Boiler," which among other things shows conclusively how thermal efficiency falls as smoke density increases : not to any material extent by the heat lost in the visible smoke itself, but by that contained in the invisible combustible gases—the crude coal gas — that accompanies smoke. The Paper is reviewed in Smokeless Air, No. 72, Winter, 1949.

Much news and data of importance has again come from the United States, in respect of legislation, technical developments, conferences, and the Federal Health Report on the disastrous Donora smog of October, 1948. This last report is easily the most important document published in recent years on the effects and consequences of atmospheric pollution upon human health, and is being reviewed at length in Smokeless Air.

An important paper by Sir Eustace Missenden, Chairman of the Railway Executive to the Institute of Transport, on 21st November, 1949, was of considerable interest and significance. The author stressed the adverse effects of locomotive smoke on the popularity and comfort of travel by rail, and the increased costs of maintenance and repair that have to be borne by the railways themselves. Sir Eustace's advocacy of electrification as the remedy will be welcomed by all concerned with smoke prevention.

THE SOCIETY

The Society's constant difficulty of containing its work within the limits of its resources has become more serious during the year, with the result, as the statement of accounts reveals, that expenditure exceeded income by over £700. The small reserves maintained for such eventualities have had to be drawn upon to meet the deficiency, but this procedure cannot be repeated for

long, and some economies have had to be made to ensure that the budget is more nearly balanced during the financial year ending 30th June, 1950.

It will be seen that the difficulty is not due to any fall in subscriptions, which continue to show a useful, if still insufficient, rise, but to the steep increase in expenditure arising from expanding activities and heavier overhead costs, especially for rent, printing, and office supplies.

It is difficult to reduce activities without injuring the Society and its future prospects, especially as even now a great many things that ought to be done, or are expected of the Society, have to be deliberately neglected or carried out less effectively than is desired. Therefore, as has been stressed before, the effort to obtain substantial new income must be continued.

Discussions were held during the year on the possibility of a grant from Government sources, and appreciation of the Society and its work, and of the need for its continuance, was expressed. Unfortunately, however, the final decision was made about the time, during the autumn, that reductions in Government expenditure were being imposed, and we were informed that a grant could not at present be made.

Fortunately, the support given to the Society for many years by the Gas Industry has been continued under the new organization of the Industry, and it is not unreasonable to expect that similar support will be given by the other national fuel industries. Local authority membership has increased, but it has to be recognized that very few of the larger authorities most obviously affected by smoke are not yet members, and that the heavy demands on local authority funds at present make it difficult for this class of members to increase their support to any substantial extent, despite the strong case that can be made for their so doing. The cost of smoke to the ratepayer is out of all proportion greater than the small amounts now being spent in efforts to eliminate it.

The Harrogate Conference

The annual conference at Harrogate on 28th, 29th and 30th September, 1949, was attended by 440 members and delegates—only a few less than the record number at Edinburgh in 1947. The Conference was addressed by Mr. Arthur Blenkinsop, M.P., Parliamentary Secretary to the Ministry of Health, and by the retiring President, Lord Simon of Wythenshawe. Other papers read were on "The Work of the Fuel Research Station," by Dr. A. Parker; "The Problem of Burning Colliery Spoilbanks," by Mr. J. Carr of the National Coal Board; "The Case Against Smoke: An Outside View," by Mr. Eric Sinkinson, of the University of Leeds. At the opening session of "Progress Reports" a visitor from the United States, Mr. Henry Burns, of the Los Angeles County Smoke Control District, gave a stimulating account of the work of his organization.

The following resolutions were adopted by the Conference:

1. *Approved Appliances in New Houses.* THAT this Conference welcomes the action of the Minister of Health and the Secretary of State for Scotland in requiring Local Authorities to specify only the types of grate or stoves included in the list of approved appliances for installation in houses built under their housing schemes, and expresses the hope that they will extend this requirement to houses built under licence by private enterprise.

2. *Use of Smokeless Fuels in New Houses.* THAT this Conference learns with regret that in many instances bituminous coal is being burnt in grates suitable for smokeless fuels in houses in Local Authority estates, which is in some cases exceptionally offensive from its being emitted at a low level from prefabricated bungalows, and asks all Local Authorities to encourage the use of smokeless fuel in these grates.

The President

Lord Simon of Wythenshawe was succeeded in office as President by Dame Vera Laughton Mathews, D.B.E. The Society is honoured by the former Director of the Women's Royal Naval

Service and present Chairman of the Domestic Coal Consumers' Council accepting this position, and as a body concerned with a problem that affects women so seriously, may congratulate itself for having for the first time elected a woman as its President. Already her influence is proving to be of value to the Society.

The Divisions

The established Divisional Councils in Scotland, Yorkshire, and the North West, have continued to be active, as their reports, following, will show. During the year two new Divisional Councils, for the North East and the East Midlands, have been successfully inaugurated.

Publications

Both lack of available time and the need to reduce expenditure have prevented the preparation of any new publications other than the regular issues of SMOKELESS AIR, the Conference *Proceedings*, and smaller leaflets, including the new *Guide to Publications*. The lifting of paper restrictions on periodicals has made it possible to return to the issue of four numbers of SMOKELESS AIR each year, and efforts are being made to increase advertising so that the magazine can be correspondingly enlarged in its editorial pages. At present a great deal of material that could be published with advantage has to be omitted, and many reports have to be severely condensed.

Information Service

It is difficult to give figures that show the extent of the Society's activity, but it may be of interest to mention that during 1949 the outward postages from Chandos House numbered approximately 33,000. Most of these, in one way or another, sent out information about the Society or about smoke prevention.

Although it is impossible to measure the general increase of interest that has taken place since the war, as compared with the years to 1939, there is no doubt about its reality. One factor, very evident at the Society's offices, is the increase in the number of requests made to it—mainly by non-members—for information, assistance, and advice. Inquiries cover a wide range of subjects, from individuals troubled about specific smoke problems, to requests for scientific or technical information. In many instances the Society can best assist by putting the inquirer into touch with a more direct or authoritative source of information, but in any case a great deal of time, in the aggregate, is taken up by seeking to be as helpful as possible. It is, however, considered that the Society is carrying out one of its essential functions in performing such services, even without recompense of any kind.

Publicity

General publicity has included participation, or the loan of material for 18 exhibitions. Thirteen of these exhibitions were organized by various Local Authorities and included in the remainder was the display given during the conference of the Central Council for Health Education at the Central Hall, Westminster. Several reports have been received of the success of these exhibitions and of the interest shown in the Society's exhibits.

Several new exhibits, designed for easy transport and durability have been prepared and put to good use during the year, and when funds permit it is hoped to extend the number and variety available and to offer them on loan more widely than is at present possible.

Sales of publications, and the number distributed free of charge for propaganda purposes, have been well maintained, and although in quantity the number is not very large, the effectiveness of even single copies is sometimes considerable. Much of the material that appears in popular articles and features in newspapers and periodicals is based on information obtained from the Society's publications or otherwise through the Society's assistance.

About 2,000 Press cuttings are received each year covering both home and overseas news items. The reading, classification and mounting for permanent reference of these cuttings, together with the action that many of them make possible, is, as will be appre-

ciated, a useful part of the Society's "intelligence."

The collection of photographs has also been steadily extended and the demand for them by authors, publishers and various organizations has been maintained.

It is interesting to note that there has been an increased demand for the loan of books, reports, etc., from the Society's library. Many of the inquiries have come from Government departments and headquarters of the recently nationalized industries.

CHARLES GANDY, *Chairman.*
ERNEST SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *General Secretary.*

SCOTTISH DIVISION

Although nothing spectacular has been achieved by the Scottish Division during the past year the interest of members in the objects of the Society has been maintained. There has been an increase in the number of individual members. Meetings have been better attended and discussions lately have been much more lively and even when meetings have lasted a considerable time they have terminated with an impression that the proceedings have stimulated the interest of the individual members.

In pursuance of the Scottish Division's standing principle of encouraging to the full any educational and training activities, the Annual Winter Course in Fuel Economy, Smoke Abatement and Boilerhouse Practice is now in session. This constitutes the 34th Winter Session, the class having been originally instituted or incepted in 1910. During the intervening years similar courses have been carried out by the Division on behalf of other local authorities, e.g., Paisley, Irvine, Airdrie and Edinburgh. In the latter centre the course is held in collaboration with the local Public Health Department. The venue of the class this year is again the Burgh Court Hall, New Municipal Buildings, Glasgow, and as has been the case during the past four years it is held under the joint aegis of the National Smoke Abatement Society, the Corporation of Glasgow, and the Ministry of Fuel and Power. The *locus* is in a most central position of the city and is conveniently accessible from all surrounding areas. The students are drawn from a very wide radius. The total enrolment for the present session so far has been 124, of which 41 are attending the advanced course. Following the precedent of the last two years the class has been divided into ordinary and advanced sections and meets on Tuesday and Wednesday evenings of each week. So far almost a full attendance has been sustained during the five complete lectures already given, and this in spite of the difficulties with shift working arrangements. The indications are that there will again be an even larger entry for the City and Guilds of London Institute Examinations in Boilerhouse Practice to be held at the beginning of May, and in connection with which several extended refresher lectures will be given during the month of April. The present course should finish towards the middle of January, 1950, and will conclude with the usual class examinations on the results of which merit certificates and prizes will be awarded in accordance with the practice of the Scottish Division. A printed syllabus for the current session is sent to all industrial firms throughout the City area. A social evening is held at the end of the session when prizes and certificates are awarded.

It is proposed to hold the Conference for the year 1950 in Aberdeen and the Division is being more enterprising than usual in as much that it has agreed that the Conference should be held on two days and not on one day only as in previous years.

JOHN TRAILL, *Hon. Secretary.*

NORTH EAST DIVISION

The North East Divisional Council commenced operations on 8th February, 1949, at an inaugural meeting held in the Town Hall, Newcastle-upon-Tyne. Altogether 98 representatives attended, who were welcomed by the Right Honourable the Lord Mayor of Newcastle-upon-Tyne, Alderman T. McCutcheon, J.P. The meeting was unanimous in its decision to form a North East Divisional Council and set up a Provisional Committee of 10 under the Chairmanship of Alderman J. Chapman, Chairman of the Health Committee, Newcastle-upon-Tyne C.B., to draft Rules and Constitution for the Council.

The second meeting of the Council was held in the Town Hall, Newcastle-upon-Tyne, on 28th April, 1949, when Alderman J. Chapman was unanimously appointed to the Chair, with Alderman P. S. Hancock, O.B.E., as his deputy. An Honorary Secretary and Treasurer was also appointed, together with an Executive Committee of 16 members (9 members from County Durham, 6 from Northumberland and 1 from the Cleveland Area of Yorkshire). The Rules and Constitution as drafted by the Provisional Committee were discussed and, with some slight amendment, adopted.

The Hon. Secretary and Treasurer gave a short address on the aims and objects of the Society and the powers of local authorities in relation to smoke nuisances and other causes of atmospheric pollution.

Up to the end of the year, the Executive Committee held three meetings and of the business carried out by them the item of major importance was that of " Sources and Incidence of Atmospheric Pollution in the North East Area." In regard to this, the valuable information gained by the Society as a result of their survey of the country as to atmospheric nuisances, was of immeasurable help, and a report was compiled on the matter as it affected the north east and circulated to all members of the Council.

The third meeting of the Council was held on 3rd December, 1949, at the Shire Hall, Durham City. In addition to members, invitations were also sent out to non-member local authorities and others. In all 78 representatives attended.

The morning session was addressed by Mr. Arthur Blenkinsop, M.P., Parliamentary Secretary, Ministry of Health, who gave a very interesting and informative talk on ministerial policy in regard to atmospheric pollution. The afternoon was devoted to a paper by Mr. G. Tate, Chief Sanitary Inspector and Housing Manager, Ashington U.D.C., on " Colliery Spoilbanks."

The principle business item during the morning was the presentation of the report of the Executive Committee on " Sources and Incidence of Atmospheric Pollution in the Council's Area," which, after full discussion, was unanimously adopted and resolution was also made that representatives of local authorities present the report for adoption by their respective local authorities. The report is as follows :

I. *A common policy* as to the elimination of atmospheric pollution in the North East Area be adopted and carried out by all Local Authorities and the Council in the North East Area.

II. That in pursuance of this all Local Authorities :

(*a*) Install a sufficient number of Deposit Gauges and Sulphur Dioxide Recorders so as to ascertain the deposit of smut, grit, etc., on their respective areas and on the area as a whole, and to measure the sulphur dioxide pollution of the atmosphere.

(*b*) Promote a by-law with respect to the emission of black smoke from chimneys other than those of private dwelling-houses. Such by-laws to be uniform throughout the area as to the permissive emission of black smoke in a prescribed period.

(*c*) Obtain legislative power to ensure that plans and specification of any furnace intended to be installed in any building and to be used for steam raising or for any manufacturing or trade purposes, be submitted for examination and approval.

(*d*) (i) Install approved fireplaces (to consume smokeless fuel) in all

planned Council premises if so designed for open fireplaces ;

(ii) to replace (or to dispense with wherever possible) at an appropriate time, all fireplaces other than those of an approved type in other Council premises ; and

(iii) on submission of plans by private enterprise of new premises or schemes of reconditioning of premises, to ensure that the fireplaces are of an approved type.

(*e*) Give early consideration as to the commencement of elimination of sources of smoke pollution in their area by way of the establishment of a smokeless zone, or zones, and as convenient, add other smokeless zones so as to ultimately convert the whole area into a smokeless zone.

(*f*) To arouse by publicity and any other method the interest of everyone concerned in the matter of smoke abolition.

III. That courses as to the work or duties of a boiler stoker or fireman be arranged at convenient centres and that all establishments in the area be contacted with a view to the attendance at the courses of their staffs engaged in this class of work.

In regard to the report two local authorities have already adopted it in full.

It will be seen that the eleven months' activities of the Council have been largely devoted to preparing a very solid foundation upon which to build the work that lies ahead. In this preparatory work the influence of the Northumberland and Durham Advisory Regional Smoke Abatement Committee's activities, which commenced in 1933 and ceased in 1939, has been beneficially experienced. One of the aims of the Council is not only a 100 per cent. membership of local authorities but also of all others who are concerned in the securing and maintenance of a clean, unpolluted air. Further, constant endeavour will be made to carry out successfully all of the present objects of the Society and also future commitments as they arise.

W. Gray, *Hon. Secretary and Treasurer.*

YORKSHIRE DIVISION

During 1949 the Yorkshire Divisional Council has pursued as far as practicable its stated policy of holding Council meetings in the various cities and towns in the Division. The average attendance at Divisional Council meetings has been between 10 and 11. Special attention has been given to instruments used for recording atmospheric pollution.

Preceding the March meeting in Leeds and the June meeting in Halifax, the Council made very interesting and instructive tours of the atmospheric pollution recording stations in the two boroughs, and were able to assess at first hand the existing arrangements for measuring atmospheric pollution and the siting of the various instruments. On these tours the Council was accompanied by representatives of the local Press who gave the work of the National Smoke Abatement Society considerable publicity.

Atmospheric pollution instruments in operation in the Yorkshire Division during 1949 were as follows : Deposit Gauges, 59 ; Lead Peroxide Instruments, 48 ; Volumetric Apparatus and Smoke Filter, 5. In addition to these instruments which are maintained by Boroughs, Urban and Rural District Councils, the West Riding County Council are in process in installing, or have installed, a number of further instruments, viz. : at least one Deposit Gauge, one Lead Peroxide Instrument and one Smoke Filter in each of the thirty-one medical divisions in the West Riding. We are also pleased to report that several other local authorities in the area now have apparatus on order and which when delivered will provide another 11 Deposit Gauges and 7 Lead Peroxide Instruments. There is therefore every prospect of the number of atmospheric pollution recording instruments in the Division being considerably increased during the next few months.

The Society's Harrogate Conference

held so much attention this year that it was not considered desirable to arrange other public meetings in Yorkshire, but the Officers and Council members were active in meetings and conferences arranged by other organisations, including the Wool Textile Fuel Efficiency Conference at Huddersfield, arranged by the Ministry of Fuel and Power. Mr. T. Henry Turner, our Chairman, gave an address on Coal Smoke to the South Elmsall Rotary Club in January and to the Harrogate Rotary Club in September. Lectures were also arranged to be given to the York Branch of the Electrical Association for Women, by Mr. Norman Hancock, and to the Townswomen's Guild at Huddersfield, by Mr. Dennis Drake.

Combined efforts have been made during the year to improve atmospheric conditions in the Stocksbridge Urban District. The United Steel Companies are extending the use of gas for process furnaces; the District Council are providing smokeless methods of heating and cooking in their new houses; Mr. James Law, Chief Smoke Inspector to the Sheffield, Rotherham and District Smoke Abatement Committee, and his staff, having secured the promised co-operation of the Local Authority, and the directors, staff and research department of the United Steel Companies, have been concentrating on atmospheric pollution in Stocksbridge and recording apparatus has been installed to ascertain the extent of any improvement.

James Goodfellow, *Hon. Secretary.*

NORTH WEST DIVISION

The North West Division has continued to make steady progress during the year 1949, although no outstanding developments can be recorded. The Divisional Council has met at regular intervals and has held four meetings during the year. Once again it has been possible to break new ground and the towns of Leigh, Bolton, Salford and Hyde in turn have been visited at the kind invitation of the Local Authorities concerned. The business of the meetings has been dealt with expeditiously and throughout the proceedings the desire to push ahead in the achievement of the Society's objectives has been manifest. At Leigh we were able to devote some time to studying local atmospheric conditions reported by Mr. H. Clusky, Senior Sanitary Inspector, in an address and to see the film "Pictures in the Fire," produced by Allied Ironfounders Limited. At Bolton, Mr. G. Hiller, Chief Sanitary Inspector, gave an interesting talk on the Fuel Research Station's fire door, and we were able to see this smoke reducing device in operation at a large cotton spinning mill.

The Annual Meeting of the Division followed the meeting of the Divisional Council held at Salford, hence there was no time available for any other special feature. Our meeting at Hyde was all the more attractive because the Mayor, Councillor Mrs. M. Bayes, is one of our own members who has always displayed the keenest interest in smoke abatement.

Annual general meetings can often be dull affairs, but that held at Salford was an exception for interest was quickened, tongues unleashed and the hands of the clock moved all too swiftly. A new Divisional Council was elected and new members have rapidly got into their stride and we look forward to an active year ahead, fortified by new enthusiasm.

Two special committees have been set up, one to deal with the policy and activities of the Divisional Council during the forthcoming year and the other to investigate the advisability of setting up an advisory panel to give expert opinion on atmospheric pollution problems within the Division.

A tripartite meeting of the Society, the Institution of Municipal Engineers and the Manchester Society of Architects was convened by the North West Division on 28th January, when Domestic Heating was the topic. Dr. J. L. Burn for the Society presented a

paper on " Heating Requirements " ; Mr. A. S. Hamilton (Municipal Engineers) dealt with " Appliances which would Fulfil the Requirements " ; and Mr. F. L. Halliday (Society of Architects) with house design with particular regard to heating.

Two joint meetings with the Institute of Fuel have been held during the year, the first on 9th March, when Mr. P. D. Kirkman, Regional Fuel Engineer of the Ministry of Fuel and Power, spoke on Fuel Efficiency, and on 9th November the subject was " Industrial Gas in the Manchester District," the paper being presented by Mr. W. F. Howell, of the North Western Gas Board. Both these meetings were interesting and informative, and were worthy of much larger attendances.

It is with sincere regret that we have to record the death late in the year of a member of the Council, Councillor Mrs. M. E. Welch, of Horwich, who always devoted time and interest to the cause and at all times made useful and practical contributions to our deliberations.

H. Moore, *Hon. Secretary.*

EAST MIDLANDS DIVISION

A divisional organization has now been established in the East Midlands. At a meeting at the Council House, Nottingham, on 7th April, 1949, presided over by the Lord Mayor of Nottingham (Councillor J. E. Mitchell) and attended by 95 delegates representing 34 local authorities and seven other bodies, it was decided to establish a Divisional Council for the area comprising the counties or shires of Cambridge, Derby (excepting the High Peak area), Huntingdon, Leicester, Lincoln, Nottingham, Norfolk, Northampton, the Soke of Peterborough, Rutland, Suffolk and the Isle of Ely. A provisional committee and honorary secretary were appointed to draft a constitution.

A further meeting was held at The Guildhall, Nottingham, on 28th July, 1949, under the chairmanship of Alderman Ernest Purser (Chairman of the Health Committee, City of Nottingham), when rules and a constitution for the division were adopted. The provisional committee and the honorary secretary were invited to act as a divisional council until elections take place in July, 1950.

On 10th November, 1949, a display of coke and gas burning appliances was staged at the Leicester Showrooms of the East Midlands Gas Board, in conjunction with the meeting of the division held at the Town Hall, Leicester, on the same day. The display was open from 10 a.m. onwards and included a showing of films. Coke-burning appliances were in operation in the Showrooms and the view was expressed by delegates that such demonstrations, open to the general public, would do much to stimulate enthusiasm for smokeless methods of domestic heating. An address entitled " The Householder and Smoke Abatement " was given by Mr. E. D. L. Shaw, A.I.H.V.E., Industrial Gas Engineer, East Midlands Gas Board, and an excellent discussion followed.

It is hoped to arrange meetings at suitable centres in all parts of the division. The results so far achieved by the division are encouraging and the provisional committee has every reason to look to the future with confidence.

A. Wade, *Hon. Secretary.*

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1949

Year ended June 30th, 1948	Income	1949
£ s. d.		£ s. d.
3,343 10 6	Subscriptions	3,561 3 6
92 18 5	Sale of Literature	169 10 4
41 15 10	Repayment of Income Tax	43 5 6
328 7 11	Conference Fees *less* Expenses	402 12 4
18 5 10	Sundry Receipts	10 7 9
	Dividends from Investments, etc.	
5 3 1	Commercial Union Assurance Co. Ltd.	5 3 1
6 10 2	British Transport	6 2 8
12 18 6	Post Office Savings Bank	20 10 10
11 13 6	Interest—Manchester and Salford Savings Bank	11 19 0
204 17 5	Excess of Expenditure over Income	716 6 7
£4,006 1 2		£4,947 1 7

Year ended June 30th, 1948	Expenditure	1949
£ s. d.		£ s. d.
2,020 10 1	Salaries	2,493 8 3
375 3 8	Rent, Rates, Gas, Water and Heating	430 11 9
141 1 4	Office Supplies and Stationery	188 1 10
45 19 4	Travelling Expenses	49 4 8
392 17 11	General Expenses, Postages and Telephone	647 15 1
60 0 0	Divisional Expenses	210 0 0
	Printing *Smokeless Air*—	
197 19 0	*Less* Receipts from Advertisements	223 9 4
578 2 3	Printing and Publishing Booklets, etc.	559 18 2
93 8 7	Staff Pension Scheme	99 1 6
160 19 0	Furniture and Fittings	45 11 0
£4,066 1 2		£4,947 1 7

Defence Bond Fund

£ s. d.		£ s. d.
500 4 4	Balance, June 30th, 1948	515 3 3
14 18 11	Interest and Premium on Conversion to 2½%	17 13 11
£515 3 3		£532 17 2

£ s. d.		£ s. d.
515 3 3	Balance, June 30th, 1949	532 17 2
£515 3 3		£532 17 2

Balance Sheet, June 30th, 1949

£ s. d.		£ s. d.	£ s. d.
	Surplus		
2,511 3 3	Balance as at June 30th, 1948	2,306 5 10	
204 17 5	*Less* Excess of Expenditure over Income	716 6 7	
2,306 5 10			1,589 19 3
281 18 6	Fees received on Account of Harrogate Conference		220 10 0
(Cheltenham)			
6 0 0	Subscriptions in advance		5 0 0
	Defence Bond Fund		
515 3 3	Balance		532 17 2
£3,109 7 7			£2,348 6 5

£ s. d.		£ s. d.	£ s. d.
	Investments (General)		
	Commercial Union Assurance Co.—		
205 11 0	£25 Stock at Cost	205 11 0	
	British Transport—		
279 5 11	£371 9s. 10d. 3% Guaranteed Stock, 1978-88	279 5 11	
1,030 15 2	Post Office Savings Bank	551 6 0	
	Manchester and Salford Savings Bank—		
479 9 8	Deposit	491 8 8	
			1,527 11 7
513 17 3	Cash at Bank and in Hand (General)		274 7 8
	Defence Bond Fund		
480 0 0	3% Defence Bonds	170 0 0	
35 0 0	2½% Defence Bonds	360 0 0	
3 3	Cash in Hand	2 17 2	
			532 17 2
10 0 0	Electricity Deposit		10 0 0
—	Stock of Books for resale		3 10 0
75 5 4	Rent paid in advance		—
£3,109 7 7			£2,348 6 5

Audited and found correct.
(*Signed*) ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

August 10th, 1949

Subscriptions and Donations

for the Year ended 30th June, 1949

* Denotes Covenant Subscriber

Division 1—Scotland

	£	s.	d.
Airdrie Corporation	3	3	0
Ardrossan Corporation	2	2	0
Ayr Corporation	3	3	0
Bowies Associated Services Ltd.		17	6
Brown, Robert C.	1	1	0
Clydebank Corporation	3	3	0
Coatbridge Corporation	3	3	0
Currie, T. S.		10	6
Dumbarton Corporation	2	2	0
Dumbarton County Council	4	4	0
Dundee Corporation	10	10	0
Dunfermline Corporation	3	3	0
East Kilbride Development Corporation	5	5	0
Edinburgh Corporation	15	15	0
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd. (1948)		10	6
(1949)		10	6
Glasgow Corporation	26	5	0
Glasgow Women's Citizens Association	1	1	0
Grattridge, H. H.		5	0
Greenock Corporation	5	5	0
Hamilton Corporation	3	3	0
Hawick Corporation	2	2	0
Heriot-Watt College	1	1	0
Howden, James & Co. Ltd.	10	10	0
Inverness Corporation	3	3	0
Irvine Corporation	2	2	0
Jedburgh Corporation	2	2	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	2	2	0
Kilmarnock Corporation	3	3	0
Kilsyth Corporation	2	2	0
Kirkcaldy Corporation (1948)	3	3	0
(1949)	5	5	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	15	15	0
Macmillan, A. M.	1	1	0
McCallum & Craigie Ltd.		10	6
McKay, W. C.		10	6
Millar, A. W.		5	0
Motherwell & Wishaw Corporation (1948)	4	4	0
(1949)	4	4	0
Paisley Corporation	5	5	0
Paton, T.		10	6
Perth Corporation	3	3	0
Port Glasgow Corporation	2	2	0
Renfrew Corporation	2	2	0
Renfrew County Council	10	10	0
Ritchie, G. B.		10	6
Roberton, Bailie, Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Association of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens Assns.	2	2	0
Scottish Junior Gas Association	1	1	0
Scott Park, Dr. and Mrs. S. D.		10	6
Smith, Mrs. Brownhill		10	6
*Stead, G. W.	10	0	0
Stirling County Council	10	10	0
Thompson, Mrs. H. I.		10	6
Waldie, J. & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		10	6

Division 2—Northern Ireland

	£	s.	d.
Young, Miss A. C.		10	0

Division 3—North West

	£	s.	d.
Abram U.D.C.	2	2	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.		15	6
Altrincham Gas Co.	2	2	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous (1948)	1	1	0
(1949)	1	1	0
Ashton Bros. & Co. Ltd.	2	2	0
Ashton Gas Company	3	3	0
Ashworth, J. R.		10	6
Atherton U.D.C.	2	2	0
*Barash, Dr. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co. Ltd.	2	2	0
Bayes, Councillor Mrs. A. W.	2	2	0
Beard, E.	1	1	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	10	10	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	10	10	0
Bolton Corporation	10	10	0
Bootle Corporation	5	5	0
Bulmer, H. E.		10	6
Burnley Corporation	5	5	0
Burnley Corporation Gas Department	1	1	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Carlisle Corporation	4	4	0
Chadderton U.D.C.	3	3	0
Cheadle & Gatley U.D.C.	3	3	0
Chester Corporation	3	3	0
Chester United Gas Co.	2	2	0
Church U.D.C.	2	2	0
Clitheroe Corporation	2	2	0
Cooper, Miss I.	1	1	0
Crewe Corporation	4	4	0
Crompton U.D.C.	2	2	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Dean, F. H.		10	0
Denton U.D.C. (1948)	2	2	0
(1949)	2	2	0
Droylsden U.D.C.	3	3	0
Duguid, Mr. and Mrs. S.	1	1	0
Eccles Corporation	3	3	0
Edwards, Miss M.		5	0
Failsworth U.D.C.	2	2	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
FitzGerald, Miss M.		10	6
Forrester, R. E.	1	0	0
*Gandy, Charles	5	0	0
Gandy, Mrs. Charles		10	6
Gavaghan, Mrs. L. A.		10	6
Glossop Corporation	2	2	0
Gregory, J.	1	0	0
Griffiths, The Misses		10	0
Hale U.D.C.	2	2	0
Hancock, A.	1	1	0
Hanratty, V.		10	6
Hardy, G. & Co.	2	2	0
Hartley, G. E.		10	6
Hay, Dr. J.	1	1	0
Hayhurst, Mr. H. and Mrs. L.	1	1	0
*Herbert, J. L.		10	6

	£	s.	d.
Herford, Miss A. C.		10	6
Hetherington, H.		10	6
Heywood Corporation Gas Department	1	1	0
Horwich U.D.C.	2	2	0
Hutchison, Col. R.		10	0
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	3	3	0
Hyde, F.	1	1	0
Irlam U.D.C.	2	2	0
Jackson, C. L.	1	1	0
Johnson, W. A.		10	6
Johnston, S.		5	0
Jones, B. T.		10	6
Kay, Miss D.		5	0
Keddie, Dr. J. T. Chalmers		10	6
*Kirkman, P. D.	1	1	0
Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	26	5	0
Lancashire & District Coke Association	10	10	0
Lancaster Corporation	3	3	0
Lane, Mrs. W.		10	6
Langford, A. S.		10	6
Lee, Sir Kenneth	1	1	0
Lees, Miss M.	1	1	0
Leigh Corporation	3	3	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation	26	5	0
Liverpool Gas Company	10	10	0
Longdendale U.D.C.	2	2	0
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	6
Manchester Corporation	26	5	0
Manchester Corporation Gas Department	10	10	0
Manchester and District Smoke Abatement Committee	10	10	0
Manchester District Association of Gas Engineers	2	2	0
Marple Gas Department	1	1	0
Marple U.D.C.	2	2	0
Mather, L. E.	2	2	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
McKellen, N.	1	1	0
Melland, Will	4	2	0
Melland, Mrs. Will	1	1	0
Metro-Vickers Electricity Co. Ltd.	6	6	0
Middleton Corporation	3	3	0
Middlewich Gas Light & Coke Co.	2	2	0
Mitchell, L. A.	1	1	0
Morrison, Dr. John	1	1	0
Mossley & Saddleworth Gas Co.	3	3	0
Nantwich Gas Company	2	2	0
Nantwich U.D.C.	2	2	0
Nelson Corporation	3	3	0
Newton-le-Willows U.D.C.	2	2	0
North Western Electricity Board	10	0	0
North Western Gas Board	10	10	0
Northwich U.D.C.	2	2	0
Oldham Corporation	10	10	0
Oldham Gas Department	5	5	0
Oliver, P. M.	1	1	0
Ormerod, H. C.		10	6
Ormskirk U.D.C.	2	2	0
Orr, J. H.		10	6
Packer, S H.		10	6
Parker, H.	1	0	0
Pear, Mrs. C.		10	6
Pike, Miss I. M.		10	6
*Polding, W. W.		10	6
Pollard, J.	1	1	0
Pontefract Bros	2	2	0
Prest, J.	1	0	0
Preston Corporation	10	10	0
Preston Gas Company	1	1	0
Priestley, I.	1	1	0
Radcliffe Corporation	2	2	0
Refuge Assurance Co.	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	2	2	0
Robinson, Alderman J.	1	0	0
Rochdale Corporation	5	5	0
Royton U.D.C.	2	2	0
St. Helens Corporation	10	10	0
Sale Corporation	3	3	0
Salford Corporation (1948)	10	10	0
(1949)	10	10	0
Sandbach, Miss E. A.		10	6
Sanderson, R. C.	1	1	0
Shaw, Mrs. M.		10	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	5	5	0
*Smith, Herbert	5	5	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation (1948)	2	2	0
(1949)	2	2	0
Stockport Corporation	10	10	0
Stretford Corporation	4	4	0
Stretford and District Gas Board	10	10	0
*Swale, W. E.		10	6
Swinton and Pendlebury Corporation	3	3	0
Taylor, H. F.		12	6
Taylor, Miss M. R.		10	0
Tootal, Broadhurst, Lee & Co. Ltd.	5	5	0
Unsworth, J.		10	6
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation	5	5	0
Warrington Corporation	5	5	0
*Wells, Dr. N. H.		5	0
West's Gas Improvement Co.	10	10	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	5	5	0
Wigglesworth, Miss E.		10	6
Wilmslow U.D.C.	2	[illegible]	0
Winder, Mr. F.		10	6
Winsford Gas Co. Ltd.	2	2	0
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Young, J. W.	1	1	0

Division 4—North East

Angus, Col. E. G.	3	3	0
Ashington U.D.C.	3	3	0
Bedlingtonshire U.D.C.	3	3	0
Berwick-on-Tweed Corporation	2	2	0
Billingham U.D.C.	2	2	0
Blaydon U.D.C.	3	3	0
Brandon and Byshottles U.D.C.	2	2	0
Caller, Dr. S.		10	6
Chester-le-Street R.D.C. (1948)	2	2	0
(1949)	2	2	0
Chester-le-Street U.D.C.	2	2	0
Darlington Corporation (1948)	5	5	0
(1949)	5	5	0
Durham County Council	26	5	0
Durham R.D.C.	3	3	0
Easington R.D.C.	5	5	0
Eston U.D.C. (1948)	3	3	0
(1949)	3	3	0
Felling U.D.C.	2	2	0
Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Green, Miss E.		10	6
Hartlepool Corporation	2	2	0
Hartlepool Gas & Water Co.	5	5	0
Hebburn U.D.C.	2	2	0
Hetton U.D.C.	2	2	0
Hexham Gas Company	2	2	0
Houghton-le-Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	10	10	0
Jarrow Corporation	3	3	0
Lanchester U.D.C.	2	2	0
Longbenton U.D.C.	2	2	0
Newburn U.D.C.	2	2	0
Newcastle and Gateshead Gas Co.	10	10	0
Newcastle-upon-Tyne Corporation	15	15	0
Northumberland County Council	15	15	0
Power Gas Corporation	5	5	0
Redcar Corporation	2	2	0
Ryton U.D.C.	2	2	0

	£	s.	d.
Seaham U.D.C.	3	3	0
Sedgefield R.D.C.	3	3	0
South Shields Corporation	10	10	0
Stanley (Co. Durham) U.D.C.	4	4	0
Sunderland Corporation	10	10	0
Wallsend Corporation	3	3	0
Washington U.D.C.	2	2	0
West Hartlepool Corporation	4	4	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	1	1	0

Division 5—Yorkshire

	£	s.	d.
Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Batley Corporation	3	3	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0
Bradford Corporation Health Department	15	15	0
Bradford Civic Society	1	1	0
Bradford Gas Department	10	10	0
Bray, G. & Co.	10	10	0
Bridlington Corporation	2	2	0
Brighouse Corporation	3	3	0
Brighouse Gas Committee	10	10	0
Brown, G. L.	2	2	0
*Carpenter, V. A.		10	6
Castleford U.D.C.	3	3	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, E.		10	6
Coke Oven Managers' Association	5	5	0
Colne Valley U.D.C.	2	2	0
Conisbrough U.D.C.	2	2	0
Dearne U.D.C.	2	2	0
Dewsbury Corporation	4	4	0
Doncaster Corporation	4	4	0
Doncaster R.D.C.	4	4	0
Edenbrow, J.		10	6
Goldstern, W.		10	6
Goodfellow, J.		10	6
Halifax Corporation	5	5	0
Hall, J. A.		10	6
Harrogate Corporation	3	3	0
Hebden Royd U.D.C.	1	1	0
Hemsworth R.D.C.	3	3	0
Hessle Gas Company	2	2	0
Holmes, W. C. & Co. Ltd.	10	10	0
*Holmes, W. G.	2	10	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Jefferson, P.		10	6
Jervis, Dr. J. Johnstone		10	6
Keighley Corporation	3	3	0
Leeds Corporation	15	15	0
Leeds Gas Department	25	0	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		10	6
Marrian, Miss E. M.		10	6
Marshall, G. C.		5	0
Mexborough U.D.C.	2	2	0
Micklethwait, R. G.		10	0
Mirfield U.D.C.	2	2	0
Morley Corporation	3	3	0
Morton, Mrs. D. F.		10	6
North Eastern Gas Board	27	2	0
Osborne, Dr. H.	1	1	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Rawmarsh U.D.C.	2	2	0
Reeder, E. C.		10	6
Rothwell U.D.C.	2	2	0
Scarborough Corporation	2	2	0
Scarborough Gas Company	3	3	0
*Severs, J. S.	1	0	0
Sewards-Shaw, Capt. K. E.		10	6
Sheffield, Rotherham and District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	3	3	0
Slagg, J. H.		10	0
Spenborough U.D.C. Gas Department	5	5	0
Stanley (Yorks.) U.D.C.	2	2	0
Stocksbridge U.D.C.	2	2	0
*Turner, T. Henry		10	6
Wakefield Corporation	5	5	0
Warwick, H.		10	6
Webb, R. N.	1	1	0
West Riding Group of Gas Companies	10	10	0
Wood, F. T.		10	6
York Corporation	5	5	0
York, Harrogate and District Group of Gas Companies	14	14	0

Division 6—West Midlands

	£	s.	d.
Barrow, H.		5	0
Best, J. K.		10	6
Bilston Corporation	5	5	0
Birmingham Corporation	26	5	0
Birmingham Gas Department	5	5	0
Brierley Hill U.D.C.	3	3	0
Burton-upon-Trent Corporation	3	3	0
Cannock District Gas Co.	3	3	0
Cannock U.D.C.	3	3	0
Collier, R. D.		10	6
Coventry Corporation	10	10	0
Darlaston U.D.C. (1948)	2	2	0
(1949)	2	2	0
Dudley Corporation	4	4	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Halesowen Corporation	3	3	0
Hall, G. R.		10	6
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		10	6
Herbert, A., Ltd.	1	1	0
Ibbotson, E. M. H.		5	0
Iron Bridge & District Gas Co.	2	2	0
Kidderminster Corporation	3	3	0
Kidsgrove Gaslight Co.	3	3	0
Ludlow Union Gas Co. Ltd.	2	2	0
Malpas Gas Co. Ltd.	1	1	0
Manger's Salt Works Ltd.		10	6
Market Drayton Gas Co.	2	2	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Newcastle-under-Lyme Corporation	4	4	0
Nuneaton Corporation	4	4	0
Oldbury Corporation	3	3	0
Radiation Ltd.	10	10	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	3	3	0
Rugeley Gas Company	2	2	0
Shrewsbury Gas Light Co.	10	10	0
Smart, R. Cecil		5	0
Smethwick Corporation	5	5	0
Solihull Gas Company	1	1	0
Solihull U.D.C.	4	4	0
Stafford Corporation	1	1	0
Staffordshire County Council	26	5	0
Stoke-on-Trent Corporation	15	15	0
Stoke-on-Trent Gas Department	10	10	0
Stone Gas Light and Coke Co.	2	2	0
Stone R.D.C.	2	2	0
Stourbridge Corporation	3	3	0
Stourbridge Gas Department	1	1	0
Tamworth Gas Light and Coke Co.	3	3	0
Tenbury Union Gas Co. Ltd.	1	1	0
Tipton Corporation	3	3	0
Trezise, W. E.	1	1	0
Uttoxeter Gas Works Ltd.	2	2	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Wednesbury Corporation	3	3	0
Wellington (Salop) Gas Co.	10	10	0
Wem Gas Light and Coke Co.	1	1	0
West Bromwich Corporation	5	5	0
West Midlands Gas Board	13	13	0
Whitchurch (Salop) Gas Co.	2	2	0
Willenhall U.D.C.	3	3	0
Wolverhampton Corporation	10	10	0
Wolverhampton Gas Company	5	5	0

Division 7—East Midlands

	£	s.	d.
Basford R.D.C.	3	3	0
Beeston and Stapleford U.D.C. (1948)	3	3	0
(1949)	3	3	0
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	2	2	0
Boston Corporation	2	2	0
Cambridge Corporation	1	1	0
Cambridge University & Town Gas Light Co.	10	10	0
Catlow, J.	2	2	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Collier, Dr. W. A. L.		10	6
Coote & Warren Ltd.	1	1	0
Corby U.D.C.	2	2	0
Corrin, H. R.		10	6
Dearden, John		10	6
Derby Corporation	1	1	0
East Midlands Gas Board	4	4	0
Fry, Miss A. R.	1	1	0
Gainsborough U.D.C.	2	2	0
Great Grimsby Gas Co.	2	2	0
Great Yarmouth Gas Co.	4	4	0
Grimsby Corporation	5	5	0
Gurney, John	2	2	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	3	3	0
Ipswich Gas Light Co.	10	10	0
Kettering Corporation	3	3	0
King's Lynn Corporation	2	2	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Leicester Corporation	15	15	0
Leicester Gas Department	3	3	0
Leominster Gas and Coke Co.	2	2	0
Lincoln Corporation	5	5	0
Long Eaton Gas Co.	10	10	0
Louth Corporation	2	2	0
Lowestoft Corporation	3	3	0
Lowestoft Water and Gas Co.	2	2	0
Mansfield Corporation (1948)	3	3	0
(1949)	3	3	0
Mansfield Woodhouse U.D.C.	2	2	0
Market Harborough U.D.C.	2	2	0
McHugh, F. G.		16	0
Newark Corporation	2	2	0
Nottingham Corporation	15	15	0
Pearson, Dr. S. Vere	1	0	0
Peterborough Corporation	4	4	0
Ripley U.D.C.	2	2	0
Scopes, F. V.	1	1	0
Southwell R.D.C.	3	3	0
Staveley U.D.C.	2	2	0
Sutton-in-Ashfield U.D.C.	3	3	0
Swadlincote U.D.C.	2	2	0
West Bridgford U.D.C.	2	2	0
Woodcock, F. Huntly	1	0	0

Division 8—South West

	£	s.	d.
Abercarn U.D.C.	2	2	0
Bathavon R.D.C.	2	2	0
Bedwas & Machen U.D.C.	2	2	0
Blaenavon U.D.C.	2	2	0
Bradshaw, Miss G.		5	0
Bristol Corporation	15	15	0
Bristol Gas Company	5	5	0
Bromyard Gas Co. Ltd.	1	1	0
Brynmawr and Blaina Gas Co.	1	1	0
Caldicot and District Gas Light and Coke Co. Ltd.	2	2	0
Campbell, Dr. A. F.	1	1	0
Cardiff Corporation	10	10	0
Cardiff Gas Light and Coke Co. (1948)	10	10	0
(1949)	10	10	0
Cardiff R.D.C.	3	3	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	4	4	0
Cheltenham and District Gas Co.	10	10	0
Chepstow Gas Company	2	2	0
Clevedon U.D.C.	2	2	0
Coulthurst, Mrs. A.		10	6
Crook, Mr S. C.	1	1	0
Cwmbran U.D.C.	2	2	0
Dixon, T. (1948)		10	6
(1949)		10	6
Ebbw Vale U.D.C.	3	3	0
Exeter Gaslight and Coke Co.	10	10	0
Fry, Miss A.		10	6
Gas Consolidation Ltd.	10	10	0
Gloucester Corporation	4	4	0
Gloucester Gas Light Co.	5	5	0
Hereford Corporation	3	3	0
Kingswood U.D.C.	2	2	0
Llwchwr U.D.C.	3	3	0
Merthyr Tydfil Corporation	4	4	0
Monmouth Gas and Water Works Co. Ltd.	2	2	0
Morgan, D. & Sons	1	1	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	3	3	0
Neath R.D.C. (July, 1948)	3	3	0
(Dec., 1948)	3	3	0
Newport Corporation	5	5	0
Newport (Mon.) Gas Co.	10	10	0
Pontypridd U.D.C.	3	3	0
Poole Corporation	2	2	0
Portishead U.D.C.	2	2	0
*Rogers, P.	2	2	0
Ross Gas Co. Ltd. (1948)	2	2	0
(1949)	2	2	0
Seale, Mrs. I. L.		10	6
Severn Valley Gas Corporation Ltd.	10	10	0
Shaftesbury, Lady		10	6
Silburn, Mrs. E.		10	6
South Western Electricity Board	10	10	0
Stroud Gas Light and Coke Co.	3	3	0
Swansea Corporation	2	2	0
Swindon Corporation	4	4	0
Swindon United Gas Co.	5	5	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Wales and Monmouthshire Association of Gas Engineers and Managers	1	1	0
Warmley R.D.C.	2	2	0
Welshpool Gas Co. Ltd.	1	1	0
Weston-super-Mare Corporation	2	2	0
Weston-super-Mare and District Gas Company	1	1	0
Women's Gas Council		10	0
Young, M.		10	6
Ystradgynlais R.D.C.	2	2	0

Division 9—South East

	£	s.	d.
Acton Corporation	4	4	0
Acworth, A. W.		10	6
Acworth, Miss E. A	1	1	0
Acworth, Miss W. B.	2	2	0
Adam, W. Wakefield	1	1	0
*Alston, Dr. J. M.	1	1	0
Andover Lighting and Power Co.	2	2	0
Ascot District Gas and Electricity Co.	2	2	0
Associated Gas and Water Undertakings Ltd.	3	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R. Ltd.	1	1	0
Banbury Corporation	2	2	0
Banbury Gas Light and Coke Co.	1	1	0
Barber, S. S.		10	6
Barking Corporation	5	5	0
Barnes Corporation	3	3	0
Bastian & Allen Ltd.	2	2	0
Battersea Corporation	10	10	0
Bedfordshire County Council	15	15	0
Bennett, M. J	1	0	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A.	1	1	0
Bexley Corporation	5	5	0
Binderman, Mrs. A.		5	0
Blacker, E.		10	6
Bligh, Mrs. M. F.		10	0
Bonston, T. L.		10	6
Bournemouth Corporation	2	2	0
Bournemouth Gas and Water Co.	2	2	0

	£	s.	d.
Brighton Corporation	10	10	0
Brighton, Hove and Worthing Gas Co.	5	5	0
British Electrical and Allied Manufacturers' Association	10	10	0
British Electrical Development Association	100	0	0
British Medical Association	10	10	0
Broadstairs Gas Company	1	1	0
Brooke, T. H.		10	6
Browne, Dr. D. Warren	1	1	0
Buist, Cmdr. C.		10	6
Buzzacott, J. O.	2	2	0
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P	2	2	0
Charrington, Gardner, Lockett & Co. Ltd.	5	5	0
Chatham Corporation	3	3	0
Chelmsford Corporation	3	3	0
Chelsea Corporation	3	3	0
Chertsey Gas Consumers' Co	2	2	0
Chingford Corporation	3	3	0
Chislehurst and Sidcup U.D.C.	4	4	0
Clarke, D. K.		10	6
Clinch, H. G.		10	6
Coal Utilization Joint Council	10	10	0
Coalite and Chemical Products Ltd.	15	15	0
Commercial Gas Company	3	3	0
Crayford U.D.C.	2	2	0
Crow, R. K.		10	6
Croydon Gas Company	10	10	0
Dagenham Corporation	2	2	0
Dartford Corporation	3	3	0
Dartford R.D.C	3	3	0
Darwen, J.	1	1	0
Deal and Walmer Gas Co.	1	1	0
Dormer, A. E		8	6
Dover Gas Co.	3	3	0
Ealing Corporation (1948)	2	2	0
(1949)	2	2	0
Eastbourne Gas Co	2	2	0
East Cowes Gas Company	1	1	0
East Ham Corporation	10	10	0
East Kent Gas Co. Ltd.	1	1	0
Edmonton Corporation	5	5	0
Edwards Mrs. E. E.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. G	1	11	6
Enfield U.D.C.	1	1	0
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Fareham U.D.C	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C	3	3	0
Finchley Corporation	4	4	0
Finsbury Corporation	4	4	0
Folkestone Gas and Coke Co.	2	2	0
*Foss, Mrs. A.		10	6
Fry, Miss M.	1	0	0
Gamble, W. H.	5	5	0
Gamlen, R. E	1	1	0
*Gandy, Miss R. L		10	6
Gas Council	262	10	0
Gas Light and Coke Co.	52	10	0
General Electric Co. Ltd.	10	10	0
George, A. K.	1	1	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Gosport Corporation	2	2	0
Graucob, F Ltd	2	2	0
Gravesend Corporation	3	3	0
Gravesend and Milton Gas Co.	2	2	0
Greenwood, T. A. S.		10	0
Guildford Corporation	5	5	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hammersmith Corporation	10	10	0
*Hampson, G. B.		10	6
Hampstead Corporation	5	5	0
Harrold Leather Mfg. Co. Ltd.	5	5	0
Harrow U.D.C.	10	10	0
Hastings and St. Leonards Gas Co.	3	3	0
Herne Bay Gas Co.	1	1	0
Heston and Isleworth Corporation	5	5	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	5	5	0
Hornchurch U.D.C.	3	3	0
Hornsey Gas Co.	6	6	0
Hutton, K. B.		10	6
Hyland, A.		10	6
Ideal Boilers and Radiators Ltd.	5	5	0
Ilford Corporation	10	10	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	26	5	0
Institution of Heating & Ventilating Engineers	10	10	0
Jast, Mrs. L. S.		10	6
Kensington Corporation	1	1	0
Kingston-upon-Thames Corporation	3	3	0
Kirkman, Mrs.	1	1	0
Kisbee, R. H.		10	6
Lambeth Corporation	1	1	0
Lea Bridge and District Gas Co.	10	10	0
Lee, S. A.		10	6
*Lessing, Dr. R.	1	1	0
Letchworth U.D.C.	2	2	0
Leveson Gower, Miss V.		5	0
Lewin, Dr. O. M. S.	1	1	0
Lewisham Corporation	10	10	0
Lewes Gas Company	3	3	0
Leyton Corporation	2	2	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S.	1	0	0
London and Counties Coke Association	52	10	0
London (City), Corporation of	26	5	0
London and Home Counties Smoke Abatement Advisory Council	2	2	0
Luscombe, B. L.		10	6
Luton Corporation	2	2	0
McGhie, A. T. S.		10	6
*McLachlan, T.		10	6
MacTaggart, Sir John A.	2	2	0
Maidenhead Corporation	3	3	0
Maidstone Gas Company	3	3	0
Malden and Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Markham, Major S. F.	1	1	0
Matthews, Mrs. M		10	6
Melland, B.	1	1	0
Merton and Morden U.D.C	4	4	0
Mid-Kent Gas Light and Coke Co.	1	1	0
Mitcham Corporation	2	2	0
Morgan, Miss G.		10	6
*Munro, Mrs. M. A.		10	6
Musgrave & Co. Ltd.	10	10	0
Neilan, J. C.		10	6
Nonhebel, G.	1	1	0
North Middlesex Gas Co.	10	10	0
Oxford Corporation	10	10	0
Oxford and District Gas Co.	2	2	0
Oxford Preservation Trust	1	1	0
Parkinson, B. R.		7	6
Pollitzer, E.	2	2	0
Portsmouth Corporation	2	2	0
Portsmouth and Gosport Gas Co.	1	1	0
Powell, C. C.	1	10	6
Rathbone, P. R.		10	6
Rayner, E. T.	2	2	0
Reigate Corporation	1	1	0
Rheostatic Co. Ltd.	1	1	0
Rhondda, Lady		10	6
Richards, Dr. H.		10	6
Richmond, A. C.		10	6
Richmond Corporation	3	3	0
Roberts, J. M.		10	6
Robinson, Mrs. B. F.	2	2	0
Robinson, Mrs. E.	2	2	0
Rochester, Chatham and Gillingham Gas Co.	10	10	0
*Roper, Captain R.		10	6
Ryan, J.		10	6
St. Albans Corporation	3	3	0
St. Marylebone Corporation	5	5	0
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0

	£	s.	d.
*Sanger, Mrs. A. D.	1	0	0
Sanitary Inspectors' Association	10	10	0
Sempill, Lord	1	1	0
Sheppy Gas Company	2	2	0
Shoreditch Corporation	3	3	0
Sittingbourne District Gas Co.	1	1	0
Slough Corporation	3	3	0
Slough Gas and Coke Co.	21	0	0
*Smith, D. V. H.	2	2	0
Smith, Sir Ernest	2	2	0
Smith & Wellstood Ltd.	1	1	0
Solid Smokeless Fuels Federation	10	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
Southampton Gas Light and Coke Co.	10	10	0
South Eastern Electricity Board	10	10	0
South Eastern Gas Corporation Ltd.	10	10	0
Southend-on-Sea Corporation	10	10	0
Southern Gas Board	1	1	0
South Suburban Gas Co.	10	10	0
Southwark Corporation	5	5	0
Southwell, W. E.		10	6
Southwick U.D.C.	2	2	0
Stepney Corporation	4	4	0
Stoke Newington Corporation	3	3	0
Sturtevant Engineering Co. Ltd.	2	2	0
Sutton and Cheam Corporation	5	5	0
Thackeray, Mrs. L. E.		5	0
Thurrock U.D.C.	4	4	0
Tiranti, A.		5	0
Tottenham Corporation (1948)	10	10	0
(1949)	10	10	0
Tottenham and District Gas Co.	10	10	0
Trier, F. Newton	1	1	0
Tunbridge Wells Gas Co.	6	6	0
Uxbridge, Maidenhead, Wycombe and District Gas Co.	10	10	0
Uxbridge U.D.C.	3	3	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
*Wadham, Miss D.	1	0	0
Walthamstow Corporation	10	10	0
Wandsworth Corporation	5	5	0
Wandsworth and District Gas Co.	10	10	0
Wanstead and Woodford Corporation	4	4	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	4	4	0
Wembley Corporation	10	10	0
West Ham Corporation (1948)	1	1	0
(1949)	1	1	0
Westminster City Council	15	15	0
White, Dr. H. D. J.		10	6
Whitstable Gas and Coke Co.	1	1	0
Wicksteed, J. H.		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0
Windsor R.D.C.	2	2	0
Windsor Royal Gas Light Co.	4	4	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	5	5	0
Women's Gas Council	10	10	0
Woodall-Duckham Vertical Retort Co. Ltd.	10	10	0
Wood Green Corporation (1948)	2	2	0
(1949)	2	2	0

Overseas Subscriptions

Hebley, H. F. (U.S.A.)	1	1	0
Reif, A. E. (U.S.A.)	1	1	0
Vereeniging Town Council (S.A.)	1	1	0
Willam, Dr. A. (Belgium)		10	6
Wurts, T. C. (U.S.A.)		10	6
Subscriptions and donations under 5s.		5	0
Total	£3,561	3	6

Information about the Society

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the counties in each Division).

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of

charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organised nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	2 guineas
25,000 to 50,000	3 ,,
50,000 to 75,000	4 ,,
75,000 to 100,000	5 ,,
100,000 to 250,000	10 ,,
250,000 to 500,000	15 ,,
Over 500,000	25 ,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas for members appointing two Representatives ; not less than 5 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for " Smokeless Air " and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

Services to Members

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available on loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to Chandos House by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) New prize-winning photo-colour poster, 30 in. x 20 in. Price 6d. each. (3) New pictorial chart primarily for school use, " These are the Things that Smoke Does," 30 in. x 20 in. Price 6d. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

The Covenant Subscription Scheme

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognised as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society, to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name) ..... *of* .....
(address) ..... (description or occupation)
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of ....., 195....., *or during my life whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of* .....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this .....
day of ..... 195.....

Signed, sealed and delivered by the said .....
in the presence of
Signature (witness) .....
Address .....
Occupation .....

(Signature) .....

PROCEEDINGS OF THE HARROGATE CONFERENCE 1949

76 pages, with 23 papers and reports, discussions, and 8 pages of illustrations.

3*s*. 6*d*. *By post*, 3*s*. 8*d*.

GUILTY CHIMNEYS

"Not merely a formidable case against coal smoke but also a most interesting collection of historic and scientific facts relating to the burning of raw coal and its consequences."—*Yorkshire Post*.

"This small but admirable book."—*Aeronautics*.

1*s*. *By post*, 1*s*. 2*d*.

The LAW of SMOKE NUISANCES

W. R. Hornby Steer

"Those who are desirous of becoming conversant with the problems of the law of smoke abatement could do no better than peruse this splendid book, which deals with the history of the subject, with common law as well as statute law, with shipping, railways and joint action of local authorities."—*Municipal Engineering*.

Cloth, 5*s*. ; *paper*, 3*s*.
By post, 5*s*. 3*d*. *and* 3*s*. 2*d*.

SMOKE:

THE PROBLEM OF COAL AND THE ATMOSPHERE

Arnold Marsh

"The most complete popular account of the smoke problem we have yet seen. The case he makes out for immediate, though gradual and cumulative, action cannot be neglected in any complete policy for the ordered exploitation of our fuel resources."—*Manchester Guardian*.

"Here is the complete picture. Admirably produced with appendices and a full bibliography, *Smoke* is illustrated with a host of quite exceptional photographs."—*Gas Journal*.
(Published by Faber & Faber Ltd.)

21*s*. *By post*, 21*s*. 6*d*.

Printed by The Leagrave Press Ltd., Luton and London


The Divisions of the Society
1
SCOTLAND
2
NORTHERN IRELAND
3
NORTH WEST
4
NORTH EAST
5
YORKSHIRE
6
WEST MIDLANDS
7
EAST MIDLANDS
8
SOUTH WEST
9
SOUTH EAST

NATIONAL SMOKE ABATEMENT SOCIETY



YEAR BOOK

1951

ONE SHILLING

FOREWORD

This Year Book is the Society's former " Annual Report " considerably extended by the inclusion of a new section of general information and references on air pollution and related matters.

It is hoped that it will prove to be of interest and assistance, even though there may be scope for improvements and additional material in future editions. In such a new venture reader co-operation can be most helpful, and we shall be grateful for every suggestion received.

NATIONAL SMOKE ABATEMENT SOCIETY

YEAR BOOK
1951

CONTENTS

	Page
N.S.A.S. Section	
Officers, Council, etc.	2
Divisional Councils	3
21st ANNUAL REPORT AND DIVISIONAL REPORTS	4
Affiliated Local Authorities	12
Information about the Society	15
Services to Members	16
The Covenant Subscription Scheme	17
Accounts for the year ended 30th June, 1950	18
Subscriptions List	20
General Section	
The Law Relating to Smoke	26
Recent Local Legislation—Smokeless Zones and Prior Approval	26
The Alkali, etc., Works Act	27
The Ministry of Fuel and Power	27
The Investigation of Air Pollution and other work of the Fuel Research Station	27
Domestic Fuel Policy—the Simon Report	28
Directory of Organizations	30
Selected List of Recent Papers and Reports	32
Guide to Publications	34
Advertisers' Announcements	37

Central Offices

CHANDOS HOUSE, BUCKINGHAM GATE, WESTMINSTER, S.W.1

ABBey 1359

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EXECUTIVE COUNCIL

Elected Divisional Representatives

Scottish Division

Mr. J. F. Anderson, Mr. John Innes, Bailie V. Roberton, C.B.E.

North Western Division

Dr. J. L. Burn, Dr. J. S. G. Burnett, Mr. S. N. Duguid, J.P., Mrs. L. Hayhurst, Mr. W. L. Mather, M.C., Alderman Dr. F. E. Tylecote.

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Yorkshire Division

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West Midlands Division

Mr. G. W. Farquharson, Dr. W. R. Martine, O.B.E., T.D., Mr. C. A. Stansbury.

East Midlands Division

Councillor the Rev. A. Brooke Westcott, Mr. F. G. McHugh, Mr. A. Wade, M.B.E.

South West Division

Mr. G. W. Dhenin, Mr. F. R. Jefford, Mr. F. J. Redstone.

South East Division

Mr. N. Bastable, Mr. H. Clinch, M.B.E., Dr. R. Lessing, Mr. J. J. Matthews, Mr. G. Nonhebel, Dr. A. J. Shinnie, Mr. H. L. Snowden, Mr. L. A. Stroud.

Appointed Representatives of National Bodies in Membership

Mr. M. G. Bennett (*Railway Executive*).

Commander C. Buist, M.V.O., R.N. (Ret.) (*Low Temperature Coal Distillers Association*).

Dr. T. P. Colclough, C.B.E. (*British Iron and Steel Federation*).

Mr. J. O. Cooke (*Solid Smokeless Fuels Federation*).

Dr. H. E. Crossley (*British Electricity Authority*).

Mr. V. W. Dale (*British Electrical Development Association*).

Dr. F. J. Eaton (*Institution of Gas Engineers*).

Alderman Mrs. Gregory *or* Mrs. J. Falconer (*Electrical Association for Women*).

Mr. Leslie Hardern (*The Gas Council*).

Mr. H. S. Horsman *or* Mr. R. A. S. Thwaites (*Institution of Electrical Engineers*).

Mr. R. A. Howson (*National Coal Board*).

Mr. G. R. Jackson *or* Mr. R. R. Jennings (*Institution of Heating and Ventilating Engineers*).

Miss H. Masters (*Women's Advisory Council on Solid Fuel*).

Mr. W. R. McGrath (*Sanitary Inspectors' Association*).

Mr. E. G. Stewart (*Institute of Fuel*).

Women's Gas Federation (Representative to be appointed).

Co-opted to Technical Committee of the Executive Council

Mr. W. A. Damon (*Ministry of Local Government and Planning*).

Dr. C. Forrester (*Ministry of Fuel and Power*).

Mr. J. S. Hales (*British Coal Utilization Research Association*).

Divisional Councils

Scottish

Chairman : Bailie John H. P. Taylor
Hon. Secretary : Norman Fraser,
City Chambers,
Glasgow.
Central 9600, Ext. 220.

North East

Chairman : Alderman J. Chapman, M.B.E.
Hon. Secretary : G. W. Tate, M.R.SAN.I., F.S.I.A.
Sanitary Department,
Council Offices,
Ashington,
Northumberland.
Ashington 3210.

West Midlands

Chairman : Councillor J. M. Morrin
Hon. Secretary : G. W. Farquharson, M.S.I.A.,
67 Broad Street,
Birmingham, 1.
Central 7000, Ext. 442.

North West

Chairman : Dr. J. S. G. Burnett, D.P.H.
Hon. Secretary : H. Moore,
Health Department,
Town Hall,
Manchester, 2.
Central 3377, Ext. 339

Yorkshire

Chairman :
Hon. Secretary : James Goodfellow, M.R.SAN.I., A.M.I.S.E.
Public Health Department,
12 Market Buildings,
Vicar Lane,
Leeds, 1
Leeds 30211, Ext. 11

East Midlands

Chairman : Councillor the Rev. A. Brooke Westcott.
Hon. Secretary : A. Wade, M.B.E., F.R.SAN.I.,
Sanitary Inspectors' Office,
50 Shakespeare Street,
Nottingham.
Nottingham 84045.

TWENTY-FIRST ANNUAL REPORT

for the Year ended 31st December, 1950

GENERAL REVIEW

Nineteen-fifty was an eventful year for the Society. It was marked by the coming-of-age celebrations, the important Fuel Efficiency Exhibition in Manchester under the Society's auspices, the inauguration of the Des Voeux Memorial Lectures, a most successful conference at Margate, and a strengthening in many ways of the Society's position. The year was, however, overshadowed by the death of several of the Society's founders, including Will Melland, first Chairman and Honorary Treasurer and former President, and Charles Gandy, Chairman for sixteen years.

Apart from the Society's own activities there were many events during the year of interest and importance to the smoke abatement movement, particularly in the growth of the trend that links smoke abatement with fuel efficiency. As the Minister of Fuel and Power has said, " smoke abatement and fuel efficiency go hand in hand."

Papers read during the year are listed elsewhere in this Year Book, and it is impossible to record the considerable amount of discussion that is continuously in progress on smoke prevention and allied subjects—a development that is to some extent shown by the increasing number of press cuttings received by the Society. During the year the amount of activity in the United States, and the number of conferences held in that country—stimulated in part by the Donora disaster—have been remarkable. Reports of the principal conferences have appeared in *Smokeless Air*, in which was also published reviews of the Federal Public Health Service report on Donora.

In Parliament smoke abatement was the subject of a debate on the adjournment on 19th September, in which the speakers were Mr. F. Longden, Dr. Barnett Stross and Mr. A. E. Davies. Mr. A. Blenkinsop, Parliamentary Secretary of the Ministry of Health, replying, said that the Government was watching with interest the development of smokeless zones to see whether this was something they could consider for general application.

In an important Coal Supplies debate in the House of Commons on 12th December, 1950, the Minister of Fuel and Power, Mr. Philip Noel-Baker, said: " An untrained stoker on a Lancashire boiler plant may waste per day as much coal as a miner can dig, simply because he is untrained. Two million tons of smoke and soot go up into the sky and fall on the country every year. Nearly all of it is due to bad stoking or inefficient grates, and every ton is waste.

" My Ministry's mobile testing units have visited many big industrial plants this year. On the average they have effected a saving of 22 per cent. in the fuel used. One big and most efficient firm, after it had had the unit, closed two boilers out of three in summer and one in winter. We are adding 12 units to the four we had before."

Of the ten towns that now possess powers to establish smokeless zones, action has been taken during the year to proceed with their initial zones by Coventry, Manchester and Salford. Manchester Corporation have received the approval of the Minister of Health with respect to their first zone in the central area, which will come into being on 1st May, 1952. Coventry's first zone is also for the central business area, but in Salford three zones, consisting largely of dwelling houses, are planned.

Many complaints of nuisance have been noted, and local press publicity has been given in particular to grit from certain older electricity generating stations, smoke from railway running sheds, cement works dust, fluorine fumes, and colliery smoke. There seems to be a tendency for more criticism to be voiced about long-established troubles in industries now nationalized. This may be due either to political motives,

or because it is thought to be easier, and less liable to danger of libel, to complain about public bodies. Thus improvement in the state of the atmosphere may, in the long run, be an unexpected consequence of public ownership.

THE SOCIETY

The Coming of Age

The celebration of the Society's 21st birthday has been helpful in enabling members to note how vigorously the Society has grown from its small beginnings, and in providing much useful and pleasing good-will publicity. A review of the Society's history and progress was published in the Spring number of *Smokeless Air*, and was followed in the Summer number by a series of greetings from prominent and representative persons, including Ministers of the Crown, and the President of the Royal Society. An appreciative leading article on the Society from *The Times* was reprinted by permission of that newspaper, and many other Press comments were made. These reflected a general opinion that the Society had done excellent and successful work with the most slender of resources. To give only one quotation (from *The Medical Press*): "Interest in smoke abatement is becoming one of the recognized hall-marks of the man or woman with a practical social conscience, and the Society deserves, perhaps, its greatest credit for working this change in the public's approach to the question."

The celebrations came to a climax at the Margate conference with a most friendly and enjoyable "birthday party."

The Des Voeux Lectures

The Executive Council decided during the year to inaugurate, in honour of the founder-President, a series of special lectures to be known as the Des Voeux Memorial Lectures. The first lecture was delivered at the Margate Conference by Dr. D. T. A. Townend, Director-General of the British Coal Utilization Research Association. Entitled "Towards the Better Use of Coal," this was a comprehensive survey of progress in the scientific study of coal and of practical applications leading to its utilization with greater efficiency and without smoke. No better inauguration for the Des Voeux Lectures than this outstanding paper could have been hoped for.

The Annual Conference

In addition to the Des Voeux Lecture and the Presidential Address by Dame Vera Laughton Mathews, the Margate Conference included the papers that are listed in another section.

In addition, by the kind co-operation of British Railways, visits were made to an Instructional Train unit which had been brought to Margate for the purpose. The delegates were honoured by an official welcome by His Worship the Mayor of Margate, and by a Civic Reception.

The number attending the Conference was somewhat smaller than in other recent years (388, compared with 440 at Harrogate in 1949), but it appears to have been generally regarded as one of the most successful of any. The discussions on the papers were vigorous and constructive, and afforded opportunity for the expression of many different points of view.

An invitation was received, and accepted, to hold the 1951 Conference in Blackpool.

Obituary

The deaths of Will Melland and Charles Gandy have already been mentioned and appreciations of their services have been published in SMOKELESS AIR. Here it is only necessary to record, once more, the Society's gratitude to these two men for all they did in founding and maintaining the Society amid many difficulties and not a little discouragement. The loss of Mr. Gandy is felt with particular keenness, for he died suddenly while still actively working for the Society as Chairman of its Executive Council, a post

he had occupied with distinction since 1934.

Dr. J. R. Ashworth of Rochdale, Bailie Alex Munro of Glasgow, and A. L. Holton of Manchester, all of whom died during the year, were members of the original Executive Committee.

The Divisions

As will be noted from their reports, which follow this report of the National Society, the Divisional Councils have been most active during the year. The value of setting up such area organizations within the Society will at once be apparent. During the year a sixth Divisional Council, for the West Midlands, was brought into being, so that the whole country is now covered except for the South West and South East Divisions. Your Secretary attended at least one meeting or conference of each of the Divisions during the year.

For certain purposes the area covered by some of the Divisions may be too large, and this had led, in the North East, to an interesting development in the formation of a district committee, for Teesside, within the framework of the North East Divisional Council and the Society. It is gratifying that in seeking to intensify their smoke prevention work, the Teesside authorities should have desired to come within the Society in this way.

The Fuel Efficiency Exhibition

Under the auspices of the Society a Fuel Efficiency in Industry and Home Exhibition was held in Manchester from 22nd November to 2nd December. The Exhibition was organized by Provincial Exhibitions Ltd., with national and local Advisory Committees of the principal fuel organizations convened by the Society and its North West Divisional Council. Nearly 80 firms and associations exhibited and among the national bodies taking part may be mentioned the National Coal Board, the Gas and Electricity Authorities, the Department of Scientific and Industrial Research (Fuel Research Board), British Railways, the Solid Smokeless Fuels Federation, and the Coal Utilization Joint Council. The Society itself occupied one stand.

The Exhibition was opened by the Rt. Hon. Viscount Hyndley, Chairman of the National Coal Board, at a ceremony presided over by the Lord Mayor of Manchester, Alderman Col. P. S. Dawson.

A Committee of the North West Division was responsible for the successful organization of lectures and film shows which were held each afternoon and evening under the auspices of different institutions and associations.

The Exhibition, the first of its kind to be held for many years, was pronounced a marked success, both by the many visitors, who came from all parts of the country, and by the Exhibitors themselves.

Publications

SMOKELESS AIR has continued to be published, and during the year increased both its number of pages and its circulation, and also carried more advertisements. The *Proceedings* of the Harrogate Conference and the Annual Report were other regular publications, and the articles and messages that had appeared in SMOKELESS AIR on the Society's coming-of-age were reprinted in booklet form. An improved "give away" leaflet, "Facts about Smoke," was prepared for the Manchester Exhibition and will be used on many future occasions.

The preparation and printing of other booklets and publicity material is unfortunately held up because of both staff limitations and cost. The rising costs of paper and printing, and of blocks for illustrations, is bound to limit either the quantity or quality, or both, of publications issued by organizations of strictly limited means, such as this Society.

Exhibitions

The demand for the Society's exhibition material has continued at an increased rate and our exhibits were on display at 20 Local Government and other exhibitions. Some new displays were prepared for the Fuel Efficiency Exhibition at Manchester and these will be available for other exhibitions. In addition, to meet a demand from Local Authorities, a special panel was prepared linking clean food and smoke prevention. Display panels that have been in continuous use throughout the country for nearly two years have proved capable of withstand-

ing rough handling and it is hoped to produce more displays of similar design.

Smokeless Fuels Use in New Houses

A resolution passed at the Harrogate Conference, 1949 (quoted in the last Annual Report), urging local authorities to encourage the use of smokeless fuels in new houses equipped with approved appliances, was duly submitted to the 1,740 local authorities in Great Britain. Only 90 authorities replied, though it is known that others considered the resolution. The replies were considered by the Publicity Committee, a report of which to the Executive Council indicated that there was a serious lack of understanding among many local authorities of the nature and usefulness of coke as a smokeless fuel ; that in some areas the price of smokeless fuels, compared with coal, was a handicap to publicity for their use ; that the quality of coke varied considerably and deliveries were difficult in some cases ; and finally, that despite the directive of the Ministry of Health of November, 1948, some local authorities were continuing to install stool-bottom and other obsolete grates in new houses instead of the modern appliances on the approved list.

Because coke was the fuel of most general importance in this matter, the Publicity Committee asked the Gas Council to meet its representatives. A meeting was subsequently held, at which the Society's deputation met the Deputy Chairman of the Gas Council and the Manager of the Coke Department. The deputation was assured that the Gas Council and the Area Boards were anxious to do all that the Society desired, but that there were many problems to solve. These were fully recognized by the Society, and as regards supply they can have been only too apparent during the recent winter. A fuller account of this matter is given in a report by the Chairman of the Publicity Committee, Mr. F. J. Redstone, read at the Margate Conference and included in the *Proceedings*.

Technical

The Technical Committee has during the year considered a number of technical questions placed before the Society, and has given particular attention to developments in the training of boiler firemen, about which it is hoped to make a report of importance in the near future. Among the pollution problems considered was a request from the Urban District Council of Corby for inquiry into the problems of smoke and grit emissions from metallurgical processes. Discussions on this have led to closer contacts being established with the British Iron and Steel Federation, which has become a member of the Society.

Membership and Finance

Membership has continued to rise during the year, there being 77 new enrolments and 25 deaths and resignations. Among the new members we have been pleased to welcome the National Coal Board, the British Electricity Authority and its Area Boards and Divisions, and, as mentioned above, the British Iron and Steel Federation.

Examinations of the accounts for the year ended 30th June, 1950, will show that the deficit on the year was reduced to £393, compared with £716 for the previous year. The new membership will help to close this gap, but unfortunately rising costs, especially in printing, stationery, and general administrative expenses, are making the position still uncertain. Unless, therefore, substantial new income is secured, a reduction in activities must, sooner or later, be faced. The 400 local authority members, by subscribing only a few more guineas each, could make the Society's position perfectly secure, but only one or two have found it possible to assist in this way.

Headquarters staff, a small team of five, has remained unchanged during the year. Shortage of funds has prevented both the much-needed appointment of new staff, and securing the additional accommodation needed, especially for the storage of stationery, publications, and the growing number of exhibits.

S. N. DUGUID, *Chairman.*

E. W. SMITH, *Hon. Treasurer.*

ARNOLD MARSH, *General Secretary.*

SCOTTISH DIVISION

The past year has been a very satisfactory period for the Scottish Division. A gratifying increase in membership has been obtained and interest has been sustained throughout the country. In addition to a record membership, the Division has been encouraged by the response to its annual winter course in fuel economy, smoke abatement and boilerhouse practice, a record number of 194 students having enrolled for the classes.

A successful Conference was held on 1st and 2nd June, 1950, in Aberdeen where hospitality was extended by the Town Council. Interesting addresses were given by Mr. J. E. Barlow, Director of Town Planning, Aberdeen, and Mr. A. D. Edmund, Robert Gordons Technical College, on the first day of the Conference and by Dame Vera Laughton Mathews, President of the Society, on the second day.

Recently the Division has circularized all local authorities in Scotland asking that when requests for speakers to address meetings are received by them from organizations, the problem of smoke abatement, with particular reference to the importance of the domestic consumer, be included as one of the regular lectures.

Authorities have also been asked to grant some monetary recognition to firemen obtaining certificates by examination at the classes referred to above.

The Division is, at present, considering the possibility of having the regulations governing the sale of coal (including coke and other smokeless fuels) amended to permit the sale of smokeless fuels in quantities less than 1 cwt.

NORMAN FRASER, *Hon. Secretary.*

NORTH WEST DIVISION

The year 1950 will be remembered as a year of great significance in the history of the Society and particularly so by the North West Division.

We were profoundly shocked by the unexpected death in November of the Chairman of the Society, Mr. Charles Gandy, who had for so many years been a leading influence in our cause. The close link with the North West is well known and we cannot pay too high a tribute to his undaunted pioneer spirit. He combined tenacity of purpose with such personal charm and courtesy that he commanded the respect and admiration of all.

In the field of smoke abatement achievement, the outstanding event of the year was the Fuel Efficiency Exhibition held in Manchester at the latter end of the year. There is no need to dilate upon the success of this venture as it will be fully reported in SMOKELESS AIR. The North West Division, however, is justly proud of this success for which the Committee and the Divisional Council strove mightily.

Ordinary business of the Society to some extent was impeded by the incidence of the Exhibition; nevertheless, there has been little diminution of activity. The Divisional Council has met twice for normal business and features of particular interest have been a closer liaison with the Ministry of Health and the Electricity Board by the co-option of representatives from their Regional authorities and the inauguration of arrangements in close co-operation with the Regional Ministry of Fuel to provide expert assistance and advice in cases of smoke problems in both the industrial and domestic fields. Assistance was given to a local authority member with regard to difficulties of ensuring satisfactory use of modern domestic appliances provided in a new housing estate.

Speakers have been provided for public meetings at Manchester, Hazel Grove, Fairfield, Stretford, Burnley and Northwich. All these meetings were reasonably well attended and much useful propaganda was disseminated and interest quickened in the smoke abatement campaign.

It is pleasing to report the continued progress of the local consultative Smoke Abatement Committee which is operating with success in Widnes and also that similar Committees are now established in St. Helens and Burnley. The Divisional Council places great value upon local activity of this kind which is a most effective means of enlarging interest and developing an informed public opinion. Further expansion in this direction would be welcomed.

Our valued liaison with the Institute of Fuel is maintained and we look forward each year to the holding of at least one joint meeting.

H. MOORE, *Hon. Secretary.*

NORTH EAST DIVISION

While a review of the Divisional activities in the form of an annual stocktaking indicates no room for complacency, it nevertheless gives the North East some cause for satisfaction because of undoubted progress and some little achievement. The Executive Committee have, during the second year, directed their steps in the direction of welding together and consolidating the good work done in the previous year.

Membership in the Division has increased, and while not spectacularly so, it does show that the work of, and the need for the Society is becoming appreciated.

One particularly noteworthy feature is the formation of a Tees-side Area Committee, working within the framework of the North East Divisional Council. This being the first such District Organization to be formed within the Society, it becomes a matter for record, and its work will be watched with great interest. That it will be the prelude to the setting up of similar Area Committees in other Divisions is more than probable, and the establishment of a Tyneside Area Committee in the near future in this Division is very likely.

Previous to the setting up of this Area Committee, all Tees-side Local Authorities were members of a Tees-side Advisory Committee (although all were not members of the Society), and valuable work was done by that body. With the formation of the Area Committee, those non-member Authorities were urged to become members of the Society, and so help continue the good work of the former Advisory Committee.

The magnitude of the problem facing the Tees-side Authorities cannot be minimized, and on the occasion of the first Annual Meeting of the Division at Middlesbrough, those privileged to be present were given a clear picture of the complexity of their task, perhaps without parallel in this country. The enthusiasm of the Tees-side members, and the manner in which they are setting about their enigma is an inspiration to all concerned with the problem of smoke abatement.

Mr. A. H. Rushworth, Chief Sanitary Inspector, Billingham, at the morning session of the Annual Meeting gave a paper on "Smoke Abatement—with particular reference to Tees-side" which was well received. Lunch, at the invitation of His Worship the Mayor of Middlesbrough (Ald. A. H. Cocks, J.P). was followed by a circular bus tour of the area, when the delegates saw at first hand the many facets of Tees-side's own peculiar perplexity referred to by Mr. Rushworth. A very successful day was concluded by a most welcome tea, again at the very kind invitation of His Worship the Mayor of Middlesbrough.

In the Division, the installation of gauges and recorders is proceeding, and among the latest bodies to fix these is Kings College, Newcastle-upon-Tyne.

Generally, under the guidance of Ald. J. Chapman, M.B.E., and following the steady work of the first year officers, notably that of Mr. W. Gray, Chief Sanitary Inspector, Newcastle-upon-Tyne, who has, at his own request, been relieved of the secretarial duties by Mr. G. W. Tate, Chief Sanitary Inspector, Ashington, but carries on as Hon. Treasurer, the Division looks forward to a growing interest in its efforts, with those of the Society, towards a cleaner atmosphere,

despite the loss of sunshine in the international sphere, which it is earnestly hoped is of a temporary nature and will not retard the progress all so much desire.

G. W. TATE, *Hon. Secretary.*

YORKSHIRE DIVISION

During the year 1950 the Yorkshire Divisional Council has met on four occasions under the Chairmanship of Mr. T. Henry Turner, M.SC., and have continued their policy of holding Council meetings throughout the Yorkshire Division. The average attendance at these meetings was 15.

At their first meeting in March the Council were given an official welcome and luncheon at the Mansion House by the Lord Mayor, Lady Mayoress and the Sheriff of York. After an excellent meeting and discussion on local atmospheric pollution problems, the Council were received at York Minster by the Dean and inspected the serious damage to the fabric of this historic building caused by atmospheric pollution.

The Council were invited by the Stocksbridge Urban District Council to hold their next meeting, in May, in their Council Chamber and were welcomed by the Chairman of the Stocksbridge authority. After the meeting and discussion on the location of new industries, the Council visited a new housing estate in which each house had its own central heating system.

Two succeeding meetings were held at Hull in July and at Sheffield in October. The Council were also given an official welcome by the respective Lord Mayors and visits were paid to the City Analyst's laboratories in Hull and to atmospheric pollution recording stations in Sheffield.

On the occasion of these meetings articles on local atmospheric pollution problems appeared in the local press, and also, the Society's aims and objects were given an appreciable amount of publicity. This publicity and the fact that the Council has been given an official welcome in the cities they have visited during the year, has we feel, stimulated interest in the Society and its work. One result has been a number of requests for talks and lectures on various aspects of the smoke problem.

The fourth Annual General Meeting of the Yorkshire Division held in Leeds, in November, was a great success. Our Chairman, Mr. T. Henry Turner, addressed the 42 delegates present on " The Progress of Smoke Abatement in Yorkshire." This address, together with statistics kindly supplied by the National Coal Board, The North Eastern Gas Board, and the Yorkshire Electricity Board, provoked a very lively and interesting discussion and earned suitable press publicity.

Taking stock of the work of the Divisional Council as a whole we can say that steady progress has continued during the year.

JAMES GOODFELLOW,
Hon. Secretary.

WEST MIDLANDS DIVISION

On 4th July, 1950, a meeting of the members and representatives of the West Midlands Division of the Society was held in the Council House, Birmingham, under the Chairmanship of Alderman F. W. Perry, of Smethwick, to consider the desirability or otherwise of establishing a West Midlands Council. Statements on the work of the Society and its Executive Council and Committee were given by the three West Midland Members of the Executive Council, namely, Messrs. C. A. Stansbury, Dr. W. R. Martine and G. W. Farquharson. These statements were amplified in a supporting address by the General Secretary, Mr. Arnold Marsh, who dealt with the Constitution and activities of the existing Divisional Councils.

After a general discussion, although with some opposition, the meeting of the 35 representatives resolved to set up a West Midlands Divisional Council, and a number of Officers to act as a provisional

Committee for this purpose was elected.

On 10th October, 1950, a meeting of the members of the provisional Committee under the Chairmanship of Mr. C. A. Stansbury, was called to consider a draft form of Rules and Constitution formed by the Honorary Secretary, Mr. G. W. Farquharson, who had consulted the Honorary Secretaries of other Divisions. These draft Rules received careful consideration and certain alterations were made to suit local conditions.

An invitation for the members and representatives of the West Midlands Division to hold a joint meeting in the form of a Brains Trust with the members of the Midland Section of the Institute of Fuel was accepted, and on 1st November, 1950, this meeting was held in the Grand Hotel, Birmingham, under the Chairmanship of Mr. H. Moren-Brown, Chairman of the Midland Section of the Institute of Fuel. Sir Ernest Smith, who had consented to act as Question-master, was unfortunately prevented by illness from attending, and Mr. Edgar Evans, one of the founder members of the Institute of Fuel took his place at short notice.

The members of the Brains Trust for the Society were :

Mrs. A. L. Hayes, Area Organizer, Electrical Association for Women.

Dr. W. R. Martine, Senior Assistant Medical Officer of Health, Birmingham.

Mr. G. W. Farquharson, Honorary Secretary.

A very excellent meeting was held.

The questions submitted indicated the interest shown by the average citizen in matters relating to Smoke Abatement.

On 12th December, 1950, a further meeting of the members and representatives of the Society was held in the Council House, Birmingham, under the Chairmanship of Alderman G. E. Beavon, Meriden Rural District Council, for the consideration and approval of the suggested Rules and Constitution.

After a prolonged discussion and contributions by various local authority members, the Constitution and Rules were approved.

Many kind tributes were paid to the memory of Mr. C. Gandy, by Dr. W. R. Martine, Birmingham, and Mr. C. Stansbury, Walsall, and the Secretary was instructed to convey a message of condolence to his widow.

Alderman Timmis of Stoke-on-Trent, Vice-President of the Society, indicated his support in the work of the Division.

Special reference was made to the attendance at the meeting of the representatives of national bodies, mainly Mr. A. W. Lee, West Midlands Gas Board, Mr. C. Nield, Midlands Electricity Board and Messrs R. M. Walton and R. Sanderson, West Midlands Division of the National Coal Board.

G. W. FARQUHARSON,
Hon. Secretary.

EAST MIDLANDS DIVISION

The year 1950 may be regarded as one of marked progress in the work of the Society in the East Midlands Division. The organization, newly formed in 1949, elected its first Council and Officers in July, 1950. Councillor the Reverend A. Brooke Westcott, M.A., was appointed Chairman and Mr. Councillor S. Jennings, Deputy Chairman.

Three meetings were organized by the Divisional Council during the year at Chesterfield, Nottingham and Peterborough and in addition, a joint meeting with the Institute of Fuel was held in Nottingham. At each meeting, civic support was given, interesting and instructive addresses were delivered and good discussions ensued. The speakers and subjects were :

Chesterfield, 9th March—" Whole House Heating—Chesterfield Experiment."
Mr. C. Bond (Borough Architect, Chesterfield) and Mr. A. Healey (Ministry of Fuel and Power).

Nottingham, 6th July—" The Work of the Society."
Mr. Arnold Marsh (General Secretary).

Nottingham, 21st September—" Atmo-

spheric Pollution."
Mr. S. N. Duguid, J.P., B.SC. (Member Executive Council, National Smoke Abatement Society). (Joint Meeting).
Peterborough, 19th October—" Atmospheric Pollution "
(*a*) " Medical Aspects," Dr. D. G. Crawshaw (Medical Officer of Health, Peterborough).
(*b*) " The Legal Position," Mr. J. Hall (Chief Sanitary Inspector, Peterborough).

The Divisional Council has given careful consideration to the possibility of increasing membership in the East Midlands Area. The Honorary Secretary prepared a full report which revealed that in the counties of Cambridgeshire, Huntingdon, Isle of Ely and Rutland there were no Local Authority members. It was, therefore, decided to invite all non-member County Councils, Borough Councils and Urban District Councils in the Division to enter into membership. By the end of the year, several new members were admitted and there were indications that several non-member Local Authorities were interested and were giving the question of membership consideration. In the hope of increasing membership and in order to widen the influence of the Society, it is the policy of the Divisional Council to organize meetings throughout the East Midlands Area at centres most readily accessible to the majority of the members.

There is, undoubtedly, great interest in the activities of the Society by the general public. Heavy demands for smokeless domestic appliances for space heating, cooking and hot water supplies are reported by merchants and dealers. Requests from other organizations for speakers on the subject of smoke abatement are numerous and are often followed by enquiries from interested persons for technical advice on individual problems.

A. WADE, *Hon. Secretary.*

AFFILIATED LOCAL AUTHORITIES

As at 15th March, 1951

Scottish Division

Members

Aberdeen
Airdrie
Ardrossan
Ayr
Ayr C.C.
Clackmannan C.C.
Clydebank
Coatbridge
Dumbarton
Dumbarton C.C.
Dundee
Dunfermline
Edinburgh
Falkirk
Glasgow
Hamilton
Hawick
Inverness
Irvine
Jedburgh
Johnstone
Kilmarnock
Kilsyth
Kirkcaldy
Kirkintilloch
Lanark C.C.
Motherwell and Wishaw
Paisley
Perth
Port Glasgow
Renfrew
Renfrew C.C.
Rothesay
Rutherglen
Stirling C.C.
West Lothian C.C.

North East Division

Members

Ashington
Bedlingtonshire
Berwick-on-Tweed
Billingham
Blaydon
Brandon and Byshottles
Chester-le-Street R.D.C.
Chester-le-Street U.D.C.
Consett
Darlington
Durham C.C.
Durham R.D.C.
Eston
Felling
Gateshead
Gosforth
Hartlepool
Hebburn
Hetton
Houghton-le-Spring
Jarrow
Lanchester
Longbenton
Middlesbrough
Newburn
Newcastle-upon-Tyne
Northumberland C.C.
Prudhoe
Redcar
Ryton
Saltburn and Marske-by-the-Sea
Seaham
Sedgefield
South Shields
Stanley
Stockton-on-Tees
Sunderland
Wallsend
Washington
West Hartlepool
Whickham

Associate

Whitley Bay

North West Division

Members

Abram
Accrington
Altrincham
Ashton-under-Lyne
Atherton
Barrow-in-Furness
Blackburn
Blackpool
Bolton
Bootle
Burnley
Bury
Buxton
Carlisle
Chadderton
Cheadle and Gatley
Church
Clitheroe
Crewe
Crompton
Crosby
Darwen
Denton
Droylsden
Eccles
Failsworth
Farnworth
Glossop
Hale
Hazel Grove and Bramhall
Horwich
Huyton-with-Roby
Hyde
Irlam
Lancashire C.C.
Lancaster
Leigh
Littleborough
Liverpool
Longdendale
Macclesfield
Manchester
Marple
Middleton
Nantwich
Nelson
Newton-le-Willows
Northwich
Oldham
Ormskirk
Preston
Radcliffe
Rawtenstall
Rhyl
Rochdale
Royton
St. Helens
Sale
Salford
Stalybridge
Stockport
Stretford
Swinton and Pendlebury
Urmston
Wallasey
Warrington
Whaley Bridge U.D.C.
Widnes
Wigan
Wilmslow
Workington
Wrexham
Wrexham R.D.C.

Associates

Birkenhead
Southport
Whiston

Yorkshire Division

Members

Adwick-le-Street
Aireborough
Batley
Bentley-with-Arksey
Bingley
Bradford
Bridlington
Brighouse
Castleford
Colne Valley
Conisbrough
Dearne
Denby Dale
Dewsbury
Doncaster
Doncaster R.D.C.
Halifax
Harrogate
Hemsworth
Holmfirth
Huddersfield
Hull
Leeds
Melham
Mexborough
Mirfield
Morley
Pontefract
Pudsey
Queensbury and Shelf
Rawmarsh
Rothwell
Sheffield, Rotherham & District Smoke Abatement Committee
Shipley
Stanley (Yorks.)
Stocksbridge
Swinton
Wakefield
Wombwell
York

Associates

Keighley
Scarborough

West Midlands Division

Members

Bilston
Birmingham
Brierley Hill
Burton-upon-Trent
Cannock
Coventry
Darlaston
Dudley
Halesowen
Kidderminster
Meriden
Newcastle-under-Lyne
Nuneaton
Oldbury
Rowley Regis
Rugby
Sedgley
Shrewsbury
Smethwick
Staffordshire C.C.
Stoke-on-Trent
Stone
Stourbridge
Tipton
Walsall
Warwickshire C.C.
Wednesbury
West Bromwich
Willenhall
Wolverhampton

Associate

Stafford

East Midlands Division

Members

Basford
Beeston and Stapleford
Blackwell
Bolsover
Boston
Chesterfield
Chesterfield R.D.C.
Corby
Derby C.C. (Co. Planning Cttee. —Corporate)
Dronfield
Eastwood
Gainsborough
Great Yarmouth
Grimsby
Heanor
Hinckley
Hucknall
Kettering
King's Lynn
Kirkby-in-Ashfield
Leicester
Lincoln
Long Eaton
Loughborough
Louth
Lowestoft
Mansfield
Mansfield Woodhouse
Market Harboro'
Newark
Nottingham
Peterborough
Ripley
Rushden
Southwell
Staveley
Sutton-in-Ashfield
Swadlincote
West Bridgford
Wigston
Worksop

Associates

Cambridge
Derby

South West Division

Members

Abercarn
Abertillery
Bath
Bathavon
Bedwas & Machen
Blaenavon
Bristol
Cardiff
Cardiff R.D.C.
Cheltenham
Cwmbran
Ebbw Vale
Gellygaer
Gloucester
Kingswood
Llantrisant and Llantwit Fadre
Merthyr Tydfil
Mynyddislwyn
Neath
Neath R.D.C.
Newport (Mon.)
Pontypridd
Portishead
Swindon
Thornbury
Tredegar
Warmley

Associates

Poole
Swansea
Weston-super-Mare

South East Division

Members

Acton
Banbury
Barking
Barnes
Battersea
Bedfordshire C.C.
Bermondsey
Bexley
Brighton
Camberwell
Chatham
Chelsea
Chislehurst and Sidcup
Crayford
Dartford
Dartford R.D.C.
Ealing
East Ham
Eastleigh
Edmonton
Erith
Eton
Fareham
Farnborough
Feltham
Finchley
Finsbury
Fulham
Gravesend
Guildford
Hackney
Hammersmith
Hampstead
Harrow
Heston & Isleworth
Hornchurch
Kingston-on-Thames
Lewisham
London, City of
Maidenhead
Malden & Coombe
Merton & Morden
Oxford
Paddington
Richmond
Rochester
St. Albans
St. Marylebone
Shoreditch
Slough
Southall
Southwark
Southwick
Stepney
Stoke Newington
Sutton and Cheam
Thurrock
Tottenham
Uxbridge
Walthamstow
Wanstead and Woodford
Watford
Wembley
Westminster
Willesden
Wimbledon
Windsor
Windsor R.D.C.

Associates

Bournemouth
Carshalton
Dagenham
East Sussex C.C.
Enfield
Gosport
Greenwich
Holborn
Kensington
Kent C.C.
Lambeth
Leyton
Luton
Mitcham
Portsmouth
Reading
Reigate
St. Pancras
Southampton
Southend-on-Sea
West Ham
Wood Green

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions : (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	..	2 guineas
25,000 to 50,000	..	3 ,,
50,000 to 75,000	..	4 ,,
75,000 to 100,000	..	5 ,,
100,000 to 250,000	..	10 ,,
250,000 to 500,000	..	15 ,,
Over 500,000 ..	..	25 ,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas for members appointing two Representatives ; not less than 5 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for SMOKELESS AIR and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000 ..	.. 2
100,000 to 250,000 ..	.. 3
250,000 to 500,000 ..	.. 4
500,000 and over ..	.. 5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available on loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to Chandos House by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) New prize-winning photo-colour poster, 30 in. × 20 in. Price 6d. each. (3) New pictorial chart primarily for school use. " These are the Things that Smoke Does," 30 in. × 20 in. Price 6d. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a "charity" by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his "general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a "charge" in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name).....*of*.....
(address).....(description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of....., 195....., *or during my life whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this .....
day of.....195.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation.....

(Signature) .....

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1950

Year ended June 30th 1949	Income	£ s. d.
£		
3,561	Subscriptions	3,678 5 6
170	Sale of Literature	111 9 2
43	Repayment of Income Tax	43 14 10
403	Conference Fees—*less* Expenses	430 9 1
10	Sundry Receipts	27 2 6
	Dividends from Investments, etc.	
5	Commercial Union Assurance Co. Ltd.	5 3 2
6	British Transport	6 2 8
21	Post Office Savings Bank	17 18 10
12	Interest—Manchester and Salford Savings Bank	12 5 6
716	Excess of Expenditure over Income	393 10 7
£4,947		£4,726 1 10

Year ended June 30th, 1949	Expenditure	£ s. d.	£ s. d.
£			
2,493	Salaries and Fees		2,316 17 8
431	Rent, Rates, Gas, Water and Heating		489 0 1
188	Office Supplies and Stationery		184 9 10
49	Travelling Expenses		36 1 9
648	General Expenses, Postages and Telephone		563 12 4
210	Divisional Expenses		155 0 0
376	Printing *Smokeless Air*	666 7 11	
223 153	*Less* Receipts from Advertisements	300 1 0	
			366 6 11
560	Printing and Publishing Booklets		503 19 7
99	Staff Pension Scheme		108 4 2
46	Furniture and Fittings		2 9 6
£4,947			£4,726 1 10

Defence Bond Fund

£		£ s. d.
515	Balance, June 30th, 1949	530 0 0
18	Interest and Premium on Conversion to 2½%	17 0 9
£533		£547 0 9

£		£ s. d.
533	Balance, June 30th, 1950	547 0 9
£533		£547 0 9

Balance Sheet, June 30th, 1950

£		£ s. d.	£ s. d.
	Surplus		
2,306	Balance as at June 30th, 1949	1,589 19 3	
716	*Less* Excess of Expenditure over Income	393 10 7	
			1,196 8 8
1,590			
220	Fees received in advance (on account of 1950 Conference)		225 4 6
5	Subscriptions in advance		4 0 0
	Defence Bond Fund		
533	Balance		547 0 9
£2,348			£1,972 13 11

£		£ s. d.	£ s. d.
	Investments (General)		
206	Commercial Union Assurance Co.—		
	£25 stock at cost	205 11 0	
	British Transport—		
279	£371 9s. 10d. 3% Guaranteed Stock, 1978-88	279 5 11	
551	Post Office Savings Bank	319 4 10	
	Manchester and Salford Savings Bank—		
491	Deposit	503 14 2	
			1,307 15 11
274	Cash at Bank and in hand (General)		107 17 3
	Defence Bond Fund		
170	3 % Defence Bonds	170 0 0	
360	2½% Defence Bonds	375 0 0	
3	Cash in hand	2 0 9	
			547 0 9
10	Electricity Deposit		10 0 0
4	Stock of Books for resale		—
£2,348			£1,972 13 11

Audited and found correct.
(*Signed*) ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester 2.

August 30th, 1950

NATIONAL SMOKE ABATEMENT SOCIETY

Divisional Accounts : Summary

Division	*Year ended*	*Commencing Balance* £ s. d.	*Grants from Headquarters* £ s. d.	*Other Income* £ s. d.	*Total* £ s. d.	*Expenditure* £ s. d.	*Closing Balance Cash in hand and Bank* £ s. d.
Scotland	31.3.50	86 2 0	(*a*) 150 0 0	(*b*) 116 1 6	352 3 6	175 19 11	176 3 7
North West	31.3.50	171 2 2	—	—	171 2 2	43 8 1	(*c*) 127 14 1
North East	31.3.50	—	30 0 0	(*d*) 44 14 1	74 14 1	18 19 4	55 14 9
East Midlands	30.6.50	—	30 0 0	—	30 0 0	8 18 5	21 1 7
Yorkshire	30.6.50	14 2 0	(*e*) 20 0 0	—	34 2 0	21 3 10	12 18 2
Totals		271 6 2	230 0 0	160 15 7	662 1 9	268 9 7	393 12 2

NOTES

(*a*) Grants for 2 years.

(*b*) Includes Fees for Conferences and Foremen's Classes.

(*c*) Balance of funds of former Manchester and District Branch.

(*d*) Includes cash assets of former Northumberland and Durham Regional Advisory Committee transferred to North East Division.

(*e*) Part Grant.

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1950

* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation (1949)	10	10	0
(1950)	10	10	0
Airdrie Corporation	3	3	0
Ardrossan Corporation	2	2	0
Ayr Corporation	3	3	0
Bowies Associated Services Ltd.		17	6
Brown, Robert C.	1	1	0
Clackmannan County Council	3	3	0
Clydebank Corporation	3	3	0
Coatbridge Corporation	3	3	0
Currie, T. S.		10	6
Dumbarton Corporation	2	2	0
Dumbarton County Council	4	4	0
Dundee Corporation	10	10	0
Dunfermline Corporation	3	3	0
East Kilbride Development Corporation	5	5	0
Edinburgh Corporation	15	15	0
Edward, J.		10	6
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd.		10	6
Glasgow Corporation	26	5	0
Glasgow Women Citizens' Association	1	1	0
Grattidge, H. H.		5	0
Hamilton Corporation	3	3	0
Hawick Corporation	2	2	0
Heriot-Watt College	1	1	0
Howden, James & Co. Ltd.	10	10	0
Inverness Corporation	3	3	0
Irvine Corporation	2	2	0
Jedburgh Corporation	2	2	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	2	2	0
Jones, Samuel & Co. Ltd.	5	5	0
Kilmarnock Corporation	3	3	0
Kilsyth Corporation	2	2	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	15	15	0
Macadam, I.	1	1	0
Macmillan, A. M.	1	1	0
McCallum & Craigie Ltd.		10	6
Millar, A. W.		5	0
Motherwell & Wishaw Corporation	4	4	0
Munro, A.		10	6
Paisley Corporation	5	5	0
Paton, T.		10	6
Perth Corporation	3	3	0
Port Glasgow Corporation	2	2	0
Renfrew Corporation	2	2	0
Renfrew County Council	10	10	0
Ritchie, A. W.		10	6
Ritchie, G. B.		10	6
Roberton, Bailie, Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Assn. of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Associations	2	2	0
Scottish Gas Board	73	10	0
Scottish Junior Gas Association	1	1	0
Scott Park, Dr. and Mrs. S. D.		10	6
Smith, Mrs. Brownhill	1	1	0
Stirling County County	10	10	0
Thompson, Mrs. H. I.		10	6
Waldie, J. & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		10	6

Northern Ireland Division

	£	s.	d.
Young, Miss A. C.		10	0

North Western Division

	£	s.	d.
Abram, U.D.C.	2	2	0
Accrington Corporation (1949)	3	3	0
(1950)	3	3	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.		15	6
Altrincham Corporation	3	3	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous	1	1	0
Ashton, Bros. & Co. Ltd.	2	2	0
Ashton-under-Lyne Corporation	3	3	0
Ashworth, J. R.		10	6
Atherton Urban D.C.	2	2	0
Barlow, D. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Batley, R. L.		10	6
Baxendale & Co. Ltd.	2	2	0
Bayes, Councillor Mrs. M.	2	2	0
Beard, E.	1	1	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	10	10	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	10	10	0
Bootle Corporation	5	5	0
British Insulated Callender's Cables Ltd.			
(1949)	5	5	0
(1950)	5	5	0
Bulmer, H. E.		10	6
Burnley Corporation	5	5	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Carlisle Corporation	4	4	0
Chadderton U.D.C.	3	3	0
Cheadle & Gatley U.D.C.	3	3	0
Church U.D.C.	2	2	0
Clitheroe Corporation	2	2	0
Cooper, A. R.		10	6
Cooper, Miss I.	1	1	0
Coulthard, Miss D.		10	0
Craven, Mr. W. D. C.	2	2	0
Crewe Corporation	4	4	0
Crompton U.D.C.	2	2	0
Crosby Corporation	4	4	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Davies, L.		10	6
Dean, F. H.		10	0
Droylsden U.D.C.	3	3	0
Duguid, Mr. and Mrs. S.	1	1	0
Eccles Corporation	3	3	0
Edwards, Miss M.		7	6
Failsworth U.D.C.	2	2	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
Forrester, R. E.	1	0	0
*Gandy, Charles	5	0	0
Gandy, Mrs. Charles		10	6
Gavaghan, Mrs. L. A.		10	6
Glossop Corporation	2	2	0
Gregory, J.	1	0	0

	£	s.	d.
Griffel, Dr. W.		10	6
Griffiths, The Misses		10	0
Hale U.D.C.	2	2	0
Hancock, A.	1	1	0
Hardy, G. & Co.	2	2	0
Hartley, G. E.		10	6
Hay, Dr. J.	1	1	0
Hayhurst, Mr. H. and Mrs. L.	1	1	0
Hazel Grove & Bramhall U.D.C.	2	2	0
*Herbert, J. L.		10	6
Herford, Miss A. C.		10	6
Hetherington, H.		10	6
Hillier, Miss E. M.	1	1	0
Hope, S.	1	1	0
Horwich U.D.C.	2	2	0
Hutchison, Col. R.		10	6
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	3	3	0
Hyde, F.	1	1	0
Irlam U.D.C.	2	2	0
Jackson, C. L.	1	1	0
Johnston, S.		5	0
Kay, Miss D.		5	0
Keddie, Dr. J. T. Chalmers		10	6
Kennedy, W. B. (1949)		10	6
(1950)		10	6
Kirkman, P. D.	1	1	0
*Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	26	5	0
Lancaster Corporation	3	3	0
Lane, Mrs. W.		10	6
Langford, A. S.		10	6
Lee, Sir Kenneth	1	1	0
Lee, Miss M.	1	1	0
Leigh Corporation	3	3	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation	26	5	0
Longdendale U.D.C.	2	2	0
McLaughlin, T. C.		10	6
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	6
Manchester Corporation	26	5	0
Marple U.D.C.	2	2	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
McKellen, N. (1949)	1	1	0
(1950)	1	1	0
Melland, Will	9	2	0
Melland, Mrs. Will	1	1	0
Metro-Vickers Electrical Co. Ltd.	6	6	0
Middleton Corporation	4	4	0
Mitchell, L. A.	1	1	0
Moore, Miss M.	5	0	0
Morrison, Dr. John	1	1	0
Nantwich U.D.C.	2	2	0
Nelson Corporation	3	3	0
Newton-le-Willows U.D.C.	2	2	0
Northern Gas Board, Carlisle	1	11	6
,, Penrith		10	6
,, Workington	1	11	6
North Western Electricity Board	10	0	0
North Western Gas Board	106	1	0
Northwich U.D.C.	2	2	0
Oldham Corporation	10	10	0
Oliver, P. M.	1	1	0
Ormskirk U.D.C.	2	2	0
Orr, J. H.		10	6
Parker, H.	1	0	0
Pear, Mrs. K.		10	6
Pike, Miss I. M.		15	0
*Polding, W. W.		10	6
Pontefract Bros.	2	2	0
Preston Corporation	10	10	0
Priestley, I.		10	6
Radcliffe Corporation	2	2	0
Rawtenstall Corporation	3	3	0
Redfern, P.		5	0
Refuge Assurance Company	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	2	2	0
Richards, Mrs. E. (1949)		5	0
(1950)		5	0
Robinson, Alderman J.	1	0	0
Rochdale Corporation	5	5	0
Royton U.D.C.	2	2	0
St. Helens Corporation	10	10	0
Sale Corporation	3	3	0
Salford Corporation	10	10	0
Sandbach, Miss E. A. (1949)		10	6
(1950)		10	6
Sanderson, R. C.	1	1	0
Scott, Mrs. A. O.		10	0
Shaw, Mrs. M.		10	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	5	5	0
*Smith, Herbert	5	5	0
Southport Corporation	1	1	9
Stacey, F. E.	1	1	0
Stockport Corporation	10	10	0
Stretford Corporation	4	4	0
*Swale, W. E.		10	6
Swinton & Pendlebury Corporation	3	3	0
Taylor, H. F.		12	6
Taylor, Miss M. R.	1	0	0
Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd.	5	5	0
Tootal, Broadhurst, Lee & Co. Ltd.	5	5	0
Unsworth, J. (1949)		10	6
(1950)	1	1	0
Urmston U.D.C.	4	4	0
Wallasey Corporation	5	5	0
Walton, T.		10	6
Warrington Corporation	5	5	0
*Wells, Dr. N. H.		5	0
West's Gas Improvement Co.	10	10	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	5	5	0
Wigglesworth, Miss E.		10	6
Wilmslow U.D.C.	2	2	0
Winder, F.		10	6
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	4	4	0
Young, J. W.	1	1	0

North East Division

	£	s.	d.
Angus, Col. E. G.	3	3	0
Ashington U.D.C.	3	3	0
Bedlingtonshire U.D.C.	3	3	0
Berwick-on-Tweed Corporation	2	2	0
Billingham U.D.C.	2	2	0
Blaydon U.D.C.	3	3	0
Brandon & Byshottles U.D.C.	2	2	0
Caller, Dr. S.		10	6
Chester-le-Street U.D.C.	2	2	0
Consett U.D.C.	3	3	0
Darlington Corporation	5	5	0
Durham County Council	26	5	0
Durham R.D.C.	3	3	0
Easington R.D.C.	5	5	0
Eston U.D.C.	3	3	0
Felling U.D.C.	2	2	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Gosforth U.D.C.	2	2	0
Green, Miss E.		10	6
Hartlepool Corporation	2	2	0
Hebburn U.D.C.	2	2	0
Hetton U.D.C.	2	2	0
Houghton-le-Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	10	10	0
Jarrow Corporation	3	3	0
Lanchester R.D.C.	2	2	0
Longbenton U.D.C. (1949)	2	2	0
(1950)	2	2	0
Middlesbrough Corporation	10	10	0
Newburn U.D.C.	2	2	0
Newcastle-upon-Tyne Corporation	15	15	0

	£	s.	d.
Northern Gas Board, Blyth	1	1	0
,, Darlington	3	3	0
,, Hexham		10	6
,, Middlesbrough	4	4	0
,, Newcastle-upon-Tyne	21	0	0
,, Stockton-on-Tees	4	4	0
,, Sunderland	4	4	0
Northumberland County Council	15	15	0
Power Gas Corporation Ltd.	5	5	0
Prudhoe U.D.C.	2	2	0
Redcar Corporation	2	2	0
Ryton U.D.C.	2	2	0
Seaham U.D.C.	3	3	0
Sedgefield R.D.C.	3	3	0
South Shields Corporation	10	10	0
Stanley (Co. Durham) U.D.C.	4	4	0
Sunderland Corporation	10	10	0
Wallsend Corporation	3	3	0
Washington U.D.C.	2	2	0
West Hartlepool Corporation	4	4	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	1	1	0

Yorkshire Division

Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Bacon, N. P.		13	6
Bagnall, Dr. R. S.		10	6
Batley Corporation	3	3	0
Beaumont, J. W.		10	6
Bentley-with-Arksey U.D.C.	2	2	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0
Bradford Corporation Health Dept.	15	15	0
Bradford Civic Society	1	1	0
Bray, G. & Co.	10	10	0
Bridlington Corporation	2	2	0
Brighouse Corporation	3	3	0
Brown, G. L.	2	2	0
*Carpenter, V. A. (Jan., 1950)		10	6
(May, 1950)		10	6
Castleford U.D.C.	3	3	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, E.		10	6
Coke Oven Managers' Association	5	5	0
Colne Valley U.D.C.	2	2	0
Conisbrough U.D.C.	2	2	0
Dearne U.D.C.	2	2	0
Denby Dale U.D.C.	2	2	0
Dewsbury Corporation	4	4	0
Doncaster Civic Trust (1949)	2	0	0
(1950)	2	0	0
Doncaster Corporation	4	4	0
Doncaster R.D.C.	4	4	0
Edenbrow, J.		10	6
Goodfellow, J.		10	6
Graucob, F. Ltd.	2	2	0
Halifax Corporation	5	5	0
Hall, J. A.		10	6
Harrogate Corporation	3	3	0
Hemsworth R.D.C.	3	3	0
Holdsworth R.Y.	1	1	0
Holmes, W. C. & Co. Ltd.	10	10	0
*Holmes, W. G.	2	10	0
Holmfirth U.D.C.	2	2	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Jefferson, P.		10	6
Jervis, Dr. J. Johnstone		10	6
Jolly, Mrs. A.		5	0
Keighley Corporation	3	3	0
Leeds Corporation	15	15	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		10	6
Marrian, Miss E. M.		10	6
Marshall, G. C.		5	0
Mexborough U.D.C.	2	2	0
Mirfield U.D.C.	2	2	0
Morley Corporation	3	3	0
North Eastern Gas Board	42	0	0
Osborne, Dr. H.	1	1	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Queensbury & Shelf U.D.C.	2	2	0
Rawmarsh U.D.C.	2	2	0
Reeder, E. C.		10	6
Robertson, G. W.	1	1	0
Rothwell U.D.C.	2	2	0
Scarborough Corporation	2	2	0
Scriven, Miss J.		10	6
*Severs, J. C.	2	0	0
Sewards-Shaw, Capt. K. E.		10	6
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	3	3	0
Stanley (Yorks) U.D.C.	2	2	0
Stocksbridge U.D.C.	2	2	0
Swinton U.D.C.	2	2	0
*Turner, T. Henry		10	6
United Steel Companies Ltd.	26	5	0
Wakefield Corporation	5	5	0
Warwick, H.		10	6
West Riding of Yorkshire Regional Smoke Abatement Committee	2	2	0
Wombwell U.D.C.	2	2	0
Wood, F. T.		10	6
York Corporation	5	5	0
Yorkshire Electricity Board	21	0	0

West Midlands Division

Barrow, H.		5	0
Best, J. K.		10	6
Birmingham Corporation	26	5	0
Brierley Hill U.D.C.	3	3	0
Burton-upon-Trent Corporation	3	3	0
Cannock U.D.C.	3	3	0
Collier, R. D.		10	6
Coventry Corporation	10	10	0
Darlaston U.D.C.	2	2	0
Dudley Corporation	4	4	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Halesowen Corporation	3	3	0
Hall, G. R.		10	6
Hayes, Mrs. A. L.		10	6
Herbert, A. Ltd.	1	1	0
Kidderminster Corporation	3	3	0
Manger's Salt Works Ltd.		10	6
Meriden R.D.C.	3	3	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Newcastle-under-Lyme Corporation	4	4	0
Nuneaton Corporation	4	4	0
Oldbury Corporation	3	3	0
Pringle, Dr. E.		10	6
Radiation Ltd.	10	10	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	3	3	0
Sedgley U.D.C.	2	2	0
Shrewsbury Corporation (1949)	3	3	0
(1950)	3	3	0
Smart, R. Cecil		5	0
Smethwick Corporation	5	5	0
Stafford Corporation	1	1	0
Staffordshire County Council	26	5	0
Stoke-on-Trent Corporation	15	15	0
Stone R.D.C.	2	2	0
Stourbridge Corporation	3	3	0
Tipton Corporation	3	3	0
Trezise, W. E.	1	1	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Warwickshire County Council	15	15	0
Wednesbury Corporation	3	3	0
West Bromwich Corporation	5	5	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	3	3	0
Wolverhampton Corporation	10	10	0
Wright, J.	1	1	0

East Midlands Division

	£	s.	d.
*Barash, Dr. M.		10	6
Basford R.D.C.	3	3	0
Beeston & Stapleford U.D.C.	3	3	0
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	2	2	0
Boston Corporation	2	2	0
Brown, J. A.		10	6
Cambridge Corporation	1	1	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Collier, Dr. W. A. L.		10	6
Coote & Warren Ltd.	1	1	0
Corby U.D.C.	2	2	0
Corrin, H. R.		10	6
Dearden, John		10	6
Derby Corporation	1	1	0
Derbyshire County Council	10	10	0
Dronfield U.D.C.	2	2	0
Earnshaw, G. H.		10	6
East Midlands Gas Board	84	0	0
Fry, Miss A. R.	1	1	0
Gainsborough U.D.C.	2	2	0
Grimsby Corporation	5	5	0
Great Yarmouth Corporation	4	4	0
Gurney, John	1	1	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	3	3	0
King's Lynn Corporation	2	2	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Leicester Corporation	15	15	0
Lincoln Corporation	5	5	0
Long Eaton U.D.C.	3	3	0
Louth Corporation	2	2	0
Lowestoft Corporation	3	3	0
Mansfield Corporation	3	3	0
Market Harborough U.D.C.	2	2	0
McHugh, F. G.		10	6
Micklethwait, R. G.		10	0
Nottingham Corporation	25	0	0
Peterborough Corporation	4	4	0
Ripley U.D.C.	2	2	0
Rushden U.D.C. (1949)	2	2	0
(1950)	2	2	0
Scopes, F. V.	1	1	0
Southwell R.D.C.	3	3	0
Staveley U.D.C.	2	2	0
Sutton-in-Ashfield U.D.C. (1949)	3	3	0
(1950)	3	3	0
Swadlincote U.D.C.	2	2	0
Webb, R. N.	1	1	0
West Bridgford U.D.C.	2	2	0
Woodcock, F. Huntly	1	0	0
Worksop Corporation	3	3	0

South West Division

Abercarn U.D.C.	2	2	0
Abertillery U.D.C.	3	3	0
Bath Corporation	4	4	0
Bathavon R.D.C.	2	2	0
Bedwas & Machen U.D.C.	2	2	0
Blaenavon U.D.C.	2	2	0
Bristol Corporation	15	15	0
Bristol & District Regional Smoke Abatement Council	2	2	0
Buzzacott, J. O.	2	2	0
Campbell, A. F.	1	1	0
Cardiff Corporation	10	10	0
Cardiff R.D.C.	3	3	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	4	4	0
Clevedon U.D.C.	2	2	0
Coulthurst, Mrs. A.		10	6
Crook, Mr. S. C.	1	1	0
Cwmbran U.D.C.	2	2	0
Ebbw Vale U.D.C.	3	3	0
FitzGerald, Miss M.		10	6
Fry, Miss A.		10	6
Gellygaer U.D.C.	3	3	0
Gloucester Corporation	4	4	0
Kingswood U.D.C. (1949)	2	2	0
(1950)	2	2	0
Llantrisant & Llantwit Fadre R.D.C.	3	3	0
Merthyr Tydfil Corporation	4	4	0
Morgan, D. & Sons	1	1	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	3	3	0
Neath R.D.C.	3	3	0
Newport Corporation	5	5	0
Pontypridd U.D.C.	3	3	0
Poole Corporation	2	2	0
Portishead U.D.C.	2	2	0
*Rogers, P.	2	2	0
Seale, Mrs. I. L.		10	6
Shaftesbury, Lady		10	6
Silburn, Mrs. E.		10	6
South Western Gas Board	36	15	0
Swansea Corporation	2	2	0
Swindon Corporation	4	4	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Warmley R.D.C.	2	2	0
Weston-super-Mare Corporation	2	2	0
Women's Gas Council		10	0
Young, M.		10	6
Ystradgynlais R.D.C.	2	2	0

South East Division

Acton Corporation	4	4	0
Acworth, A. W.		10	6
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Adam, W. Wakefield	1	1	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0
Ascot Gas Water Heaters Ltd. (1949)	10	10	0
(1950)	10	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R. Ltd.	1	1	0
Bakelite Ltd.	2	2	0
Banbury Corporation	2	2	0
Barber, S. S.		10	6
Barking Corporation	5	5	0
Barnes Corporation	3	3	0
Bastian & Allen Ltd.	2	2	0
Battersea Corporation	10	10	0
Beard, J. R.	1	1	0
Bedfordshire County Council	15	15	0
Bennett, M. J.	1	0	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A.		10	0
Bexley Corporation	5	5	0
Binderman, Mrs. A.		5	0
Bligh, Mrs. M. F.		10	0
Bond, Miss E. F.		10	6
Bonstow, T. L.		10	6
Bournemouth Corporation	2	2	0
Braidwood, G. L. (1949)		10	6
(1950)		10	6
Brighton Corporation	10	10	0
British Electrical & Allied Manufacturers' Association	10	10	0
British Electrical Development Assen.	100	0	0
British Medical Association	10	10	0
Brown, R. C.		10	6
Browne, Dr. D. Warren	1	1	0
Buist, Cmdr. C.		10	6
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	2	2	0
Charrington, Gardner, Locket & Co. Ltd.	5	5	0
Chatham Corporation	3	3	0
Chelmsford Corporation	3	3	0
Chelsea Corporation	3	3	0
Chingford Corporation	3	3	0

	£	s.	d.
Chislehurst & Sidcup U.D.C.	4	4	0
Clarke, D. K.		10	6
Clinch, H. G.		10	6
Coalite & Chemical Products Ltd.	15	15	0
Coal Utilization Joint Council	10	10	0
Crayford U.D.C.	2	2	0
Crow, R. K.		10	6
Dagenham Corporation	2	2	0
Dann, P. W.		10	6
Dartford Corporation	3	3	0
Dartford R.D.C.	3	3	0
Darwen, J.	1	1	0
Ealing Corporation	2	2	0
Eastern Gas Board	42	0	0
East Ham Corporation	10	10	0
Eastleigh Corporation	3	3	0
East Sussex County Council	5	5	0
Edmonton Corporation	5	5	0
Edwards, Mrs. E. E.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. G.	1	11	6
Enfield U.D.C.	1	1	0
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Fareham U.D.C.	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C.	3	3	0
Finchley Corporation	4	4	0
Finsbury Corporation	4	4	0
*Foss, Mrs. A.		10	6
Fox, F.	1	0	0
Franklin, C. Ltd.	2	2	0
Fry, Miss M.	1	0	0
Fulham Corporation	10	10	0
Gamlen, R. E.	1	1	0
*Gandy, Miss R. L.		10	6
Gas Council	250	0	0
General Electric Co. Ltd.	10	10	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Grace, Mrs. E.		10	6
Grange, L. H.		10	6
Gravesend Corporation	3	3	0
Greenwich Corporation (1949)	2	2	0
(1950)	2	2	0
Greenwood, T. A. S.		10	0
Guildford Corporation	3	3	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hammersmith Corporation	10	10	0
*Hampson, G. B.		10	6
Hampstead Corporation	5	5	0
Harrold Leather Mfg. Co. Ltd.	1	1	0
Harrow U.D.C.	10	10	0
Heston & Isleworth Corporation	5	5	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	1	1	0
Hornchurch U.D.C.	3	3	0
*Hutton, K. B.		10	6
Hyland, A.		10	6
Ideal Boilers & Radiators Ltd.	5	5	0
Ilford Corporation	10	10	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	26	5	0
Institution of Heating & Ventilating Engineers	10	10	0
Jast, Mrs. L. S.		10	6
Jones, Griff		10	6
Kensington Corporation	1	1	0
Kent County Council	5	5	0
Kingston-upon-Thames Corporation	3	3	0
Kisbee, R. H.		10	6
Lambeth Corporation	1	1	0
Lee, S. A.	1	0	0
*Lessing, Dr. R.	1	1	0
Letchworth U.D.C.	2	2	0
Leveson Gower, Miss V.		5	0
Lewisham Corporation	10	10	0
Leyton Corporation	2	2	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S.	1	0	0
London (City), Corporation of	26	5	0
London & Home Counties Smoke Abatement Advisory Council	2	2	0
Low Temperature Coal Distillers Association of Gt. Britain Ltd.	5	5	0
Luscombe, B. L.		10	6
Luton Corporation	2	2	0
McGhie, A. T. S.		10	6
*McLachlan, T.		10	6
MacTaggart, Sir John A.	2	2	0
Maidenhead Corporation	3	3	0
Malden & Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Markham, Major S. F.	2	2	0
Mathias, J.	1	1	0
Matthews, Mrs. M.		10	6
Melland, B.	1	1	0
Merton & Morden U.D.C.	4	4	0
Mitcham Corporation	2	2	0
Morgan, Miss G.		10	6
*Munro, Mrs. M. A.		10	6
Musgrave & Co. Ltd.	10	10	0
Nonhebel, G.	1	1	0
North Thames Gas Board	105	0	0
Oxford Corporation	10	10	0
Oxford Preservation Trust	1	1	0
Paddington Corporation (1949)	5	5	0
(1950)	5	0	0
Parkinson, B. R.		7	6
Parmenter, Mrs. D. M.		10	6
Pollitzer, E.	2	2	0
Portsmouth Corporation	2	2	0
Rathbone, P. R.		10	6
Reading Corporation	2	2	0
Reigate Corporation	1	1	0
Rheostatic Co. Ltd.	1	1	0
Rhondda, Lady		10	6
Richards, Dr. H.		10	6
Richmond, A. C.		10	6
Richmond Corporation	3	3	0
Roberts, J. M.		10	6
Robinson, Mrs. E.	2	2	0
Rochester Corporation	3	3	0
*Roper, Captain R.		10	6
Ryan, J.		15	0
St. Marylebone Corporation	5	5	0
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0
*Sanger, Mrs. A. D.	1	0	0
Sanitary Inspectors' Association	10	10	0
Simon, Professor F. E.		10	6
Slough Corporation	3	3	0
*Smith, D. V. H.	3	3	0
Smith, Sir Ernest	2	2	0
Smith & Wellstood Ltd.	1	1	0
Solid Smokeless Fuels Federation	10	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
South Eastern Electricity Board	10	10	0
South Eastern Gas Board	78	15	0
Southend-on-Sea Corporation	2	2	0
Southern Gas Board	10	10	0
Southwark Corporation	5	5	0
Southwell, W. E.		10	6
Southwick U.D.C.	2	2	0
Stepney Corporation	4	4	0
Stoke Newington Corporation	3	3	0
Sturtevant Engineering Co. Ltd.	2	2	0
Sutton & Cheam Corporation	5	5	0
Swift, S.	1	1	0
Thackeray, Mrs. L. E.		5	0
Thurrock U.D.C.	4	4	0
Tiranti, A.		5	0
Tottenham Corporation	10	10	0
Trier, F. Newton	1	1	0
Uxbridge U.D.C.	3	3	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
*Wadham, Miss D.	1	0	0
Walthamstow Corporation	10	10	0
Wanstead & Woodford Corporation	4	4	0
Ward, Dr. F. A. B.	2	2	0

	£	s.	d.
Watford Corporation	4	4	0
Wembley Corporation	10	10	0
West Ham Corporation	1	1	0
Westminster City Council	15	15	0
White, Dr. H. D. J.		10	6
Wicksteed, J. H...		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	5	5	0
Women's Gas Federation	10	10	0
Woodall-Duckham Vertical Retort Co. Ltd.	10	10	0
Wood Green Corporation	2	2	0

Overseas Subscriptions

	£	s.	d.
Dyktor, H. G. (U.S.A.)	1	1	0
Hebley, H. F. (U.S.A.)	1	1	0
*Reif, A. E. (U.S.A.)	1	1	0
Vereeniging Town Council (S.A.) ..	1	1	0
Wurts, T. C. (U.S.A.)	1	0	0
Subscriptions and donations under 5s.		7	6
Total	£3,678	5	6

What They Say About the Society

. . . These fumifugists, as John Evelyn, their earliest inspirer, might have called them, prefer to be known as the National Smoke Abatement Society. Beginning a generation earlier, in the face of much derision, as three separate groups in London, Sheffield, and Scotland, they first came together at Buxton in 1929. They already had one Act of Parliament to their credit. They have since launched the only journal in the world devoted to atmospheric pollution ; they have stimulated much technical research and inaugurated the training of stokers in fuel economy; they have widely popularized the ideas of smokeless zones and public regulation of fuel-burning appliances ; and they have enrolled in their ranks some 400 local authorities, including nearly all the larger and smokier towns. Public opinion has been won over ; and it has all been done on an annual budget only now attaining £3,500.—*The Times.*

During its 21 years the Society has done a vast amount of work. It has initiated new ideas, it has preached the evils of smoke up and down the land with a zeal that bears comparison with that of the apostles of any great cause of our times. Most important of all it has aroused the civic conscience of Britain.—*The Gas World.*

There can be few voluntary bodies in this country which have attempted a more discouraging task, for smoke abatement begins with an attack on certain principles which the Englishman cherishes. . . . However, the list of foolhardy eccentrics who form the Society is growing so steadily that they are ceasing to wear the ' crank ' label in the public eye. In fact, interest in smoke abatement is becoming one of the recognized hall-marks of the man or woman with a practical social conscience, and the Society deserves, perhaps, its greatest credit for working this change in the public's approach to the question.—*The Medical Press.*

General Section

THE LAW RELATING TO SMOKE, ETC.

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (Smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 34). Briefly, the expression "smoke" includes "soot, ash, grit and gritty particles." Provisions (s.101) that require a nuisance to be proved or enable a "best practicable means" defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that "interferes with or obstructs" the efficient working of mines or metallurgical processes.

Action may be taken with regards to smoke under common law procedure and can be to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase "black smoke" is not used.

The smoke abatement legislation is administered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

Recent Local Legislation

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of "prior approval" of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this will be followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows; those also including smokeless zone clauses being marked "*S.Z.*":

Manchester Corporation Act, 1946 *S.Z.*
City of London (Various Powers) Act, 1946.
Preston Corporation Act, 1947.
Paisley Corporation Order Confirmation Act, 1947.
Dudley Corporation Act, 1947
Salford ,, 1948 *S.Z.*
Coventry ,, 1948 *S.Z.*
Darwen ,, 1948
Birmingham ,, 1948
St. Helens ,, 1948
Smethwick ,, 1948
Rochdale ,, 1948 *S.Z.*
Brighton ,, 1948
Bradford ,, 1949 *S.Z.*
Bolton ,, 1949 *S.Z.*
Urmston ,, 1949 *S.Z.*
Crewe ,, 1949 *S.Z.*
Slough ,, 1949
West Bromwich ,, 1949
Leyton ,, 1950
Manchester ,, 1950 (Amendment to 1946 Act).
Wolverhampton ,, 1950 *S.Z.*
Edinburgh Corporation Order Confirmation Act, 1950 *S.Z.*

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made in 1928, 1935, 1939 and 1950. The Orders, however, do not apply to Scotland. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an Inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the Inspectorate. (*See also Directory*)

THE MINISTRY OF FUEL AND POWER

The main function of the Fuel Efficiency Branch of the Ministry of Fuel and Power is the promotion of efficiency in the use of fuel and power and since this is necessarily closely associated with smoke abatement the Ministry takes an active and practical part in this work.

The technical services of the Branch are carried out by a staff of experienced fuel engineers and fuel engineering assistants in each Region who are available to assist in dealing with problems of excessive smoke and grit emission. Inquiries should be addressed to the appropriate Regional Fuel Engineer at the address given in the Directory.

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes three main lines of attack :

(i) a study of the properties and behaviour of atmospheric pollution, including the systematic measurement of the amounts of pollution present in the air in various areas throughout the country.

(ii) the development of improved methods for the burning of fuels to provide for more efficient combustion, with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iii) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who

make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December, 1950, regular observations of atmospheric pollution were being made by some 106 bodies, involving the use of approximately 860 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. One such process, in which the oxides of sulphur are recovered as a saleable by-product, is undergoing investigation in a pilot-scale plant at the Fuel Research Station.

Local authorities and other bodies who co-operate with the Department in the investigation of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1950 some 72 bodies had appointed representatives to serve on this Conference.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to ten per cent. of the fuel, has been developed and is now being manufactured commercially. In the same field, research is now being directed towards the development of smoke eliminators for vertical boilers and hand-fired, forced-draught boilers of the Lancashire type.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the "Approved List," which is circulated for the guidance of local authorities. The information is also incorporated in the Coal Utilization Joint Council's list of recommended domestic fuel appliances, which is available to the general public.

DOMESTIC FUEL POLICY

The Simon Report

In March, 1946, the Fuel and Power Advisory Council, the Chairman of which was Lord Simon of Wythenshawe, presented a report on "Domestic Fuel Policy" to the Minister of Fuel and Power. This was, and is, an important document for the smoke abatement movement, as the policy recommended was largely identical with that needed for the abolition of household smoke.

The Committee came to the conclusion that "our coal is used for domestic heating with a degree of inefficiency which is not, so far as we can ascertain, even approached in any other country in the world." For reference some of the Committee's recommendations relating particularly to smoke prevention, are quoted (the reference after each paragraph being to the section of the "Summary of Objectives and Recommendations," as given on pages 32-35 of the Report) :

"*National Fuel Economy*—To ensure that all fuels shall be used in the most efficient and economical manner with due

regard to the need for conserving the national reserves of coal. (1c)

" *Smoke abatement*—To abolish the pollution of the atmosphere from domestic sources by soot and tar, and to reduce to the lowest practicable limit the emission of sulphurous gases. (1d)

" The Government should encourage the production of improved heating appliances for all fuels and for all domestic purposes. It is particularly important to develop multi-fuel appliances to burn efficiently and as smokelessly as possible both bituminous coal and smokeless solid fuels. (2a)

" Minimum standards should be established as soon as possible for all leading types of appliances. (2b)

" The manufacture and sale of new appliances falling below approved standards should be prohibited as soon as possible. (2c)

" The Government should take steps to secure the mass production of standardized domestic fuel appliances. (2g)

" In subsidized houses the Government should make the use of approved solid fuel appliances a condition of subsidy, and should consider the advisability of a free issue of such appliances as part of the subsidy. (2h)

" Old-fashioned coal grates in existing houses should be replaced wherever possible by new approved appliances. Subsidies should be granted by the Government to encourage widespread and rapid action on these lines. (2j)

" Central heating plants should be accepted as the main means of heating blocks of flats or single large houses. (3a)

" The Government should endeavour to ensure that the available supplies of smokeless solid fuel should be burnt in individual houses, and that suitable types of central heating and district heating plants should burn bituminous coal. (3b)

" It should be the policy of the Government to replace bituminous coal in all single house appliances by smokeless solid fuel as rapidly as adequate supplies can be provided at a reasonable price. (4d)

" The Government should encourage the largest practicable increase in the production of smokeless solid fuels suitable for domestic purposes. (5a)

" The necessary legislation should be passed to enable smokeless zones to be established, and a few such zones should be declared, mainly for experimental purposes. (10)

" It should be the target of a national domestic fuel policy to secure that the 50 million tons of bituminous coal now burnt with a working efficiency of 20 per cent. should be replaced in 20 years by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40 per cent. . . ." (11)

Of these recommendations progress has been made with respect to 2a, 2b, 2g, 2h and 10.

Attention may be drawn to action taken by the Ministry of Health with respect to 2h. Circular 170/48, to Housing Authorities, dated 11th November, 1948, stated :

" Having regard to the continued importance of economy in fuel and the permanent need of cheaper and more efficient domestic heating, the Minister must in these circumstances ask all housing authorities to review present practice and in all future housing schemes to specify only the types of solid fuel heater contained in the lists of approved appliances circulated from time to time."

DIRECTORY OF ORGANIZATIONS

Concerned with Air Pollution and Related Subjects

ALKALI INSPECTORATE :

Chief Inspector, Ministry of Local Government and Planning, Whitehall, S.W.1.
Deputy Chief Inspector, do.
District Inspectors, District I, 76 Elton Road, Darlington.
District II, 38 College Road North, Liverpool, 23.
District III, 30 Montgomery Road, Sheffield, 7.
District IV, 40 Kingsdown Rd., Senneleys Park, Birmingham, 31.
District V, 41 Henleaze Avenue, Westbury-on-Trym, Bristol.
District VI, 137 Stanwell Road, Ashford, Middlesex.
Chief Inspector for Scotland—Department of Health for Scotland, 7 Rothesay Terrace, Edinburgh, 3.

AMENITIES COUNCIL, NATIONAL, 34 Great Ormond Street, London, W.C.1.
AMERICA, AIR POLLUTION AND SMOKE PREVENTION ASSOCIATION OF, 4400 Fifth Avenue, Pittsburgh, 13, Pa.
AMERICA : OFFICE OF AIR AND STREAM POLLUTION, BUREAU OF MINES, U.S. Department of the Interior, Washington, 25, D.C.
ARCHITECTS, ROYAL INSTITUTE OF BRITISH, 66 Portland Place, London, W.1.
ARCHITECTS AND SURVEYORS, INCORPORATED ASSOCIATION OF, 75 Eaton Place, London, S.W.1.
ARTS, ROYAL SOCIETY OF, 6 John Adam Street, London, W.C.2.

BRISTOL AND DISTRICT REGIONAL SNOKE ABATEMENT COMMITTEE, Public Health Department, 48 Queen Square, Bristol, 1.
BRITISH MEDICAL ASSOCIATION, B.M.A. House, Tavistock Square, London, W.C.1.
BRITISH STANDARDS INSTITUTION, 28 Victoria Street, London, S.W.1.
BUILDING CENTRE, 9 Conduit Street, London, W.1.
BUILDING RESEARCH STATION, Bucknall's Lane, Garston, nr. Watford, Herts.

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S.W.1.
CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1.
CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7.
CIVIC SOCIETIES, CENTRAL COUNCIL OF, 82 Pall Mall, London, S.W.1.
COAL BOARD, NATIONAL, Hobart House, Grosvenor Place, London, S.W.1.
COAL UTILIZATION JOINT COUNCIL, 13 Grosvenor Gardens, London, S.W.1.
COAL UTILIZATION RESEARCH ASSOCIATION, BRITISH, Randalls Road, Leatherhead, Surrey.
COKE OVEN MANAGERS' ASSOCIATION, 1 Cliff Street, Mexborough, Yorks.
COKE RESEARCH ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1.
COMBUSTION ENGINEERING ASSOCIATION, 24 Tottenham Court Road, London, W.1.
COUNTY BOROUGHS' ASSOCIATION, Town Hall, Oxford.
COUNTY COUNCILS' ASSOCIATION, 84 Eccleston Square, London, S.W.1.
COUNTY COUNCILS IN SCOTLAND, ASSOCIATION OF, 3 Forres Street, Edinburgh.

ELECTRICAL AND ALLIED INDUSTRIES RESEARCH ASSOCIATION, BRITISH, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. Laboratories, Wadsworth Road, Perivale, Middlesex.
ELECTRICITY AUTHORITY, BRITISH, British Electricity House, Great Portland Street, London, W.1.
ELECTRICAL DEVELOPMENT ASSOCIATION, BRITISH, 2 Savoy Hill, London, W.C.2.
ELECTRICAL ENGINEERS, INSTITUTION OF, Savoy Place, Victoria Embankment, London, W.C.2.

FUEL, INSTITUTE OF, 18 Devonshire Street, London, W.1.

FUEL AND POWER, MINISTRY OF, 7 Millbank, London, S.W.1.
Chief Scientist's Division
Fuel Efficiency Branch : Queen Anne's Chambers, Dean Farrer Street, London, S.W.1.
Regional Offices :

Scotland	24/6 Douglas Crescent, Edinburgh, 12.
Northern	Government Buildings, Kenton Bar, Newcastle-upon-Tyne.
North Western	Burton Road, West Didsbury, Manchester.
North Eastern	Century House, South Parade, Leeds.
North Midland	7 Government Buildings, Chalfont Drive, Nottingham.
Midland	63 Hagley Road West, Birmingham, 17.
Wales	27 Newport Road, Cardiff.
South Western	Flowers Hill, Brislington, Bristol, 4.
Southern	" Whiteknights," Earley, Reading.
Eastern	Brooklands Avenue, Cambridge.
London	Mill House, 87/9 Shaftesbury Avenue, London, W.1.
South Eastern	Government Buildings, Forest Road, Hawkenbury, Tunbridge Wells, Kent.

FUEL RESEARCH STATION, River Way, Greenwich, London, S.E.10.
(Scottish Branch : Thorntonhall, nr. Glasgow).

GAS COUNCIL, Gas Industry House, 1 Grosvenor Place, London, S.W.1.
GAS ENGINEERS, INSTITUTION OF, 17 Grosvenor Crescent, London, S.W.1.
GAS INDUSTRIES, SOCIETY OF BRITISH, 56 Victoria Street, London, S.W.1.
GEORGIAN GROUP, 27 Grosvenor Place, London, S.W.1.

HEALTH EDUCATION, CENTRAL COUNCIL FOR, Tavistock House, Tavistock Square, London, W.C.1.
HEATING AND VENTILATING ENGINEERS, INSTITUTION OF, 75 Eaton Place, London, S.W.1.
HOUSING AND TOWN PLANNING COUNCIL, NATIONAL, 42 Devonshire Street, London, W.1.
HOUSING CENTRE, 13 Suffolk Street, London, S.W.1.
HOUSING INCORPORATED, INSTITUTE OF, 359 Strand, London, W.C.2.

IRON AND STEEL FEDERATION, BRITISH, Steel House, Tothill Street, London, S.W.1.
IRON AND STEEL RESEARCH ASSOCIATION, BRITISH, 11 Park Lane, London, W.1.
IRON FOUNDERS' ASSOCIATION, BRITISH, 30 St. James's Square, London, S.W.1.

LOCAL GOVERNMENT AND PLANNING, MINISTRY OF, Whitehall, London, S.W.1 (*see also* Alkali Inspectorate).
LONDON AND HOME COUNTIES SMOKE ABATEMENT ADVISORY COUNCIL, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1.
LOW TEMPERATURE COAL DISTILLERS' ASSOCIATION OF GREAT BRITAIN LTD., 82 Victoria Street, London, S.W.1.

MANCHESTER AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Town Hall, Manchester, 2.
MECHANICAL ENGINEERS, INSTITUTION OF, Storey's Gate, London, S.W.1.
MEDICAL OFFICERS OF HEALTH, SOCIETY OF, Tavistock House South, Tavistock Square, London, W.C.1.
METEOROLOGICAL SOCIETY, ROYAL, 49 Cromwell Road, London, S.W.7.
METROPOLITAN BOROUGHS' STANDING JOINT COMMITTEE, Westminster City Hall, London, W.C.2.
MIDLANDS JOINT ADVISORY COUNCIL FOR THE ABATEMENT OF SMOKE AND ATMOSPHERIC POLLUTION, Public Health Department, Council House, Birmingham, 3.
MUNICIPAL AND COUNTY ENGINEERS, INSTITUTION OF, 84 Eccleston Square, London, S.W.1.
MUNICIPAL CORPORATIONS' ASSOCIATION OF, Palace Chambers, Bridge Street, London, S.W.1.

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY, 42 Queen Anne's Gate, London, S.W.1.

Parliamentary and Scientific Committee, 31 Palace Street, London, S.W.1.
Public Health and Hygiene, Royal Institute of, 28 Portland Place, London, W.1.
Preservation of Rural England, Council for the, 4 Hobart Place, London, S.W.1.
Protection of Ancient Buildings, Society for the, 55 Great Ormond Street. London, W.C.1.

Royal Burghs of Scotland, Convention of the, 51 Castle Street, Edinburgh.
Rural District Councils Association, 191/7 St. Stephen's House, London, S.W.1.

Sanitary Association of Scotland, Royal, 185 St. Vincent Street, Glasgow.
Sanitary Engineers, Institution of, 118 Victoria Street, London, S.W.1.
Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1.
Sanitary Institute, Royal, 90 Buckingham Palace Road, London, S.W.1.
Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1 ; *see also* Building Research Station, Fuel Research Station.
Scottish Counties of Cities Association, City Chambers, Edinburgh.
Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield.
Smoke Abatement Society, National
Central Offices, Chandos House, Buckingham Gate, S.W.1.
East Midlands Division, Sanitary Inspectors' Office, 50 Shakespeare St., Nottingham.
North East Division, Sanitary Department, Town Hall, Ashington.
North West Division, Health Department, Town Hall, Manchester, 2.
Scottish Division, City Chambers, Glasgow.
West Midlands Division, Public Health Department, 67 Broad Street, Birmingham, 3.
Yorkshire Division, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1.
Social Service, National Council of, 26 Bedford Square, London, W.C.1.
Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1.
Stationery Office, His Majesty's, 421 Oxford Street, London, W.1.

Town and Country Planning Association, 28 King Street, London, W.C.2.
Town Planning Institute, 18 Ashley Place, London, S.W.1.

Urban District Councils' Association, 28 Victoria Street, London, S.W.1.

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6.
West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1.
Women, Electrical Association for, 35 Grosvenor Place, London, S.W.1.
Women of Great Britain, National Council of, Drayton House, Gordon Street, London, W.C.1.
Women's Advisory Council on Solid Fuel, 18 South Molton Street, London, W.1.
Women's Gas Federation, 1 Grosvenor Place, London, S.W.1.

RECENT PAPERS AND REPORTS

A Selected List

Air Pollution Bibliography. *Meteorological Abstracts and Bibliography*. Amer. Met. Soc., Jan., 1950.

Air Pollution in Donora, Pa. Preliminary Report of the Unusual Smog Episode, Oct., 1948. Federal Security Agency, Public Health Service, Washington, D.C., U.S.A. P. H. Bull. No. 306, 1949.

Alkali, etc., Works. 86th Annual Report for the year 1949. H.M.S.O., 1950.

Atmospheric Pollution, Progress Review. Arnold Marsh. *J. Inst. Fuel*, Sep., 1950, **23**, 267-270.

Cities without Smoke. Dr. A. Parker. *J. Roy. Soc. Arts*, Dec., 1950, **99**, 85-104.

Current Research on the Possible Effect of Smoke upon the Incidence of Diseases of the Lung. R. E. Waller. *N.S.A.S. Proc. Margate Conf.*, 1950, 53-59.

District Heating. Donald V. H. Smith. *J. Roy. San. Inst.*, July, 1950. **70,** 406-417.

District Heating and its Application to New Towns. A. E. Margolis. *J. Inst. Fuel*, Sep., 1950, **23.**

Drop Forging. H. E. T. Lowbridge. *Smokeless Air*, Aut. 1950, **21,** 31-34.

Drop Forging—American Impressions. M. C. Vaughan. *Smokeless Air*, Aut. 1950, **21,** 34-35.

Dust Deposition from Chimney Stacks. C. H. Bosanquet, W. F. Carey and E. M. Halton. *Proc. Inst. Mech. Engrs.*, 1950, **162,** 355.

Effect of Certain Factors on the Efficiency of a Hand-fired, Natural-draft Lancashire Boiler. *Fuel Res. Tech. Pap. No.* 55. H.M.S.O., 1949.

Fuel Research Report, 1939-46. D.S.I.R., H.M.S.O., 1950.

Homes and Smoke : the Inclusion of New Houses in the Salford Smokeless Zones Scheme. Alderman G. H. Goulden. *N.S.A.S. Proc. Margate Conf.*, 1950, 69-73.

Housing Manual, 1949. Min. of Health. H.M.S.O., 1949.

Investigation of Atmospheric Pollution. 26th Report for the Five Years ended Mar., 1944. D.S.I.R. Fuel Res. H.M.S.O., 1949.

Less Smoke. Leading Article *The Times*, 25 Mar., 1950.

Natural Removal of Pollution from the Atmosphere. Dr. A. R. Meetham. *J. Roy. Met. Soc.*, Oct., 1950, **70,** 359-371.

Railway Smoke : A Statement of the Problem. W. O. Skeat. *N.S.A.S. Proc. Margate Conf.*, 1950, 84-95.

Railway Smoke : The Attack on the Problem. M. G. Bennett. *N.S.A.S. Proc. Margate Conf.*, 1950, 95-99.

Respiratory Disease in Association with Atmospheric Pollution. Dr. J. S. G. Burnett. *N.S.A.S. Proc. Margate Conf.*, 1950, 48-53.

Smoke on Tees-side. A. H. Rushworth. *Smokeless Air*, Aut., 1950, **21,** 31-34.

Smoke Prevention as a Factor in New Housing. Cyril H. Walker. *N.S.A.S. Proc. Margate Conf.*, 1950, 64-65.

Smoke Prevention and the New Towns. C. A. C. Turner. *N.S.A.S. Proc. Margate Conf.*, 1950, 66-68.

Smokeless Combustion of Bituminous Coal. Sir Charles Ellis. Presidential Address, British Coal Utilization Research Association. *B.C.U.R.A. Quart. Gaz.*, 1950, 8.

Solid Smokeless Fuels Situation. F. J. Redstone. *N.S.A.S. Proc. Margate Conf.*, 1950, 75-77.

Some Thoughts on Railway Motive Power. Sir Eustace Missenden. *J. Inst. Transport*, Jan., 1950, **23,** 230.

Towards the Better Use of Coal. Dr. D. T. A. Townend. First Des Voeux Memorial Lecture. *N.S.A.S. Proc. Margate Conf.*, 1950, 12-47.

Use of Smokeless Fuels as a Condition of Tenancy in Local Authority Houses. Alderman J. Robinson. *N.S.A.S. Proc. Margate Conf.*, 1950, 75-77.

U.S.A. Conferences, 1949/50

American Chemical Society, 115th Meeting, San Francisco, Mar., 1949. Industrial and Engineering Chemistry, Vol. 41, 11. (Abst. *Smokeless Air*, Aut., 1949, Vol. 20).

Smoke Prevention Association of America, Annual Convention, Montreal. May, 1950.

Stanford Research Institute, Pasadena, Cal. First National Air Pollution Symposium. Nov., 1949. (Abst. *Smokeless Air*, Sum., 1950, Vol. 20, 134-138).

United States Technical Conference, Washington. May, 1950. (Abst. *Smokeless Air*, Aut., 1950. Vol. 21, 16-18).

Guide to Publications

This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications, which may be obtained either direct from the Society or other bookseller.

Prices in brackets include postage, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. If a number of items are ordered together excess postage will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable.*)

CODE NO.

I THE LAW

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevant sections in full of the principal Acts. New edition, 1948.
Cloth, 5s. (5s. 3d.) ; paper covers, 3s. (3s. 2d.)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans for post-war reconstruction. 1s. (1s. 2d.)
3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 2d.)
4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)
5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 8d.)
6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)
7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (7d.)
8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A first report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 1d.)
9. **Smoke Abolition and the Public : Problems of Education and Propaganda.** Leslie Hardern. Reprinted from 1948 Conference report. 6d. (7d.)
35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's View of the Case against Smoke. 4s. 6d. (4s. 8d.)
42. **Margate Conference, 1950.** The Des Voeux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as Applied to New Housing and Railway Smoke. 6s. (6s. 2d.)

(*See also VIII*, 29, 30, 32, 38, 45)

III GENERAL

11. **Smoke : The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 6d.)

12. **Guilty Chimneys.** Classified extracts on the case against smoke from authoritative papers and reports, etc. With photographs and maps and diagrams in colour. Invaluable for speakers, writers and teachers. 1s. (1s. 2d.)

13. **Smokeless Air.** The Society's quarterly magazine-type journal. News, articles, photographs, comment. 1s. (1s. 1d.). Per annum, 4s., post free.

14. **Britain's Burning Shame.** A popular pamphlet that puts smoke in its simplest terms to the woman in the home (1939). 2d. (3d.)

IV HISTORICAL

15. **Fumifugium : or the Smoake of London Dissipated.** John Evelyn. The famous diarist's well-known tract (1661) reprinted by the Society, with an introduction by Rose Macaulay. Cloth, 1s. 6d. (1s. 8d.) ; paper covers 6d. (7d.)

43. **The Society Comes of Age, 1929-1950.** The Story of the Society reprinted from *Smokeless Air.* Gratis

V SMOKE PREVENTION ADMINISTRATION

16. **Smoke Control.** Suggestions to local authorities on guidance and control in respect of new fuel-burning installations. 3d. (4d.)

17. **Smokeless Zones.** An explanation of the Society's proposals for expanding smokeless zones. 3d. (4d.)

(*See also I*, 1 ; *II*, 2, 4, 5, 6, 35, 42 ; *III*, 11)

VI INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 6d. (8d.)

36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural-Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949). 1s. (1s. 2d.)

(*See also II*, 3, 4, 5, 6, 35, 42 ; *III*, 11 ; *V*, 16)

VII DOMESTIC HEATING

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(*See also II*, 2, 3, 4, 5, 6, 35, 42 ; *III*, 11)

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(*See also II*, 3, 8 ; *VI*, 36)

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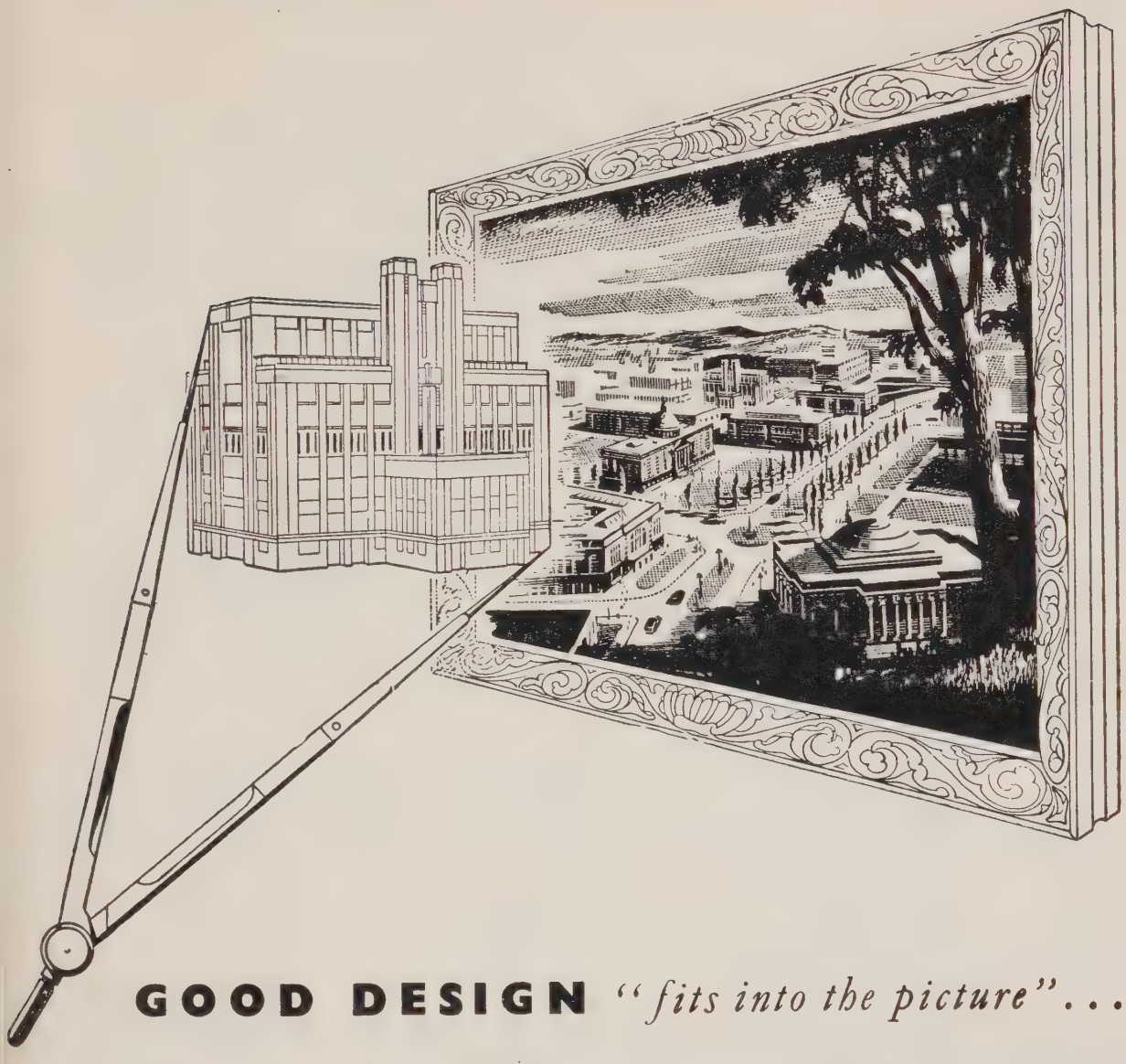
(*See also III*, 12)

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(*See also II*, 35)



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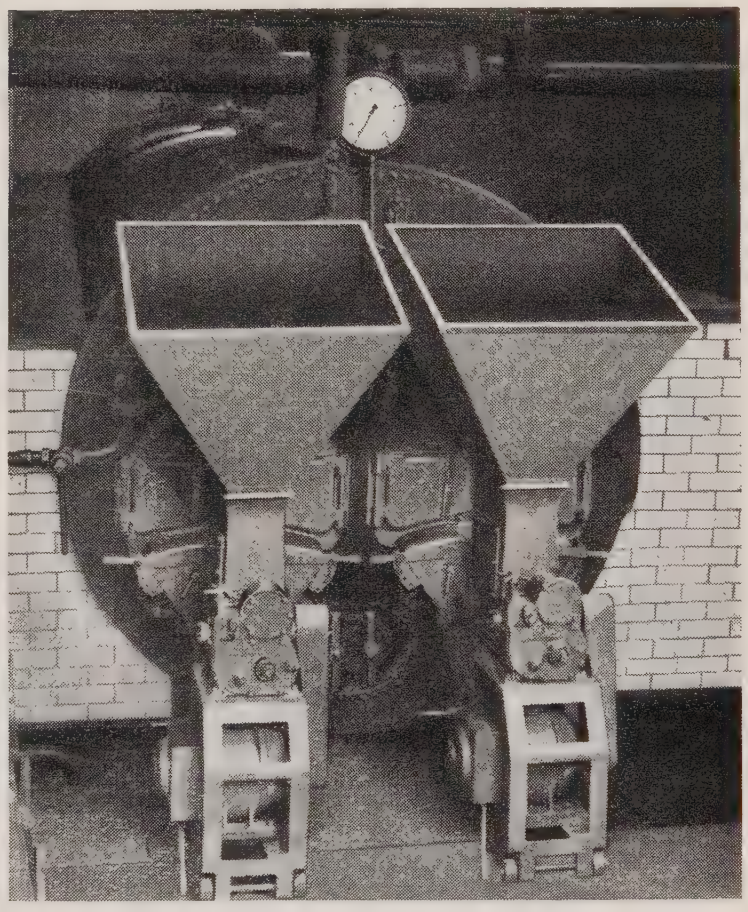
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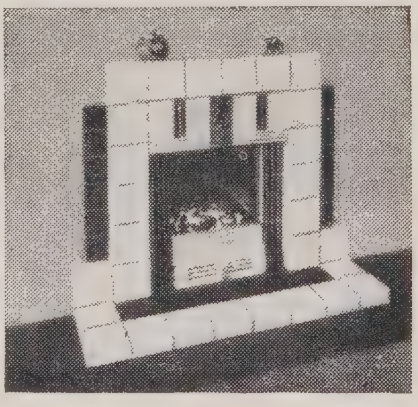
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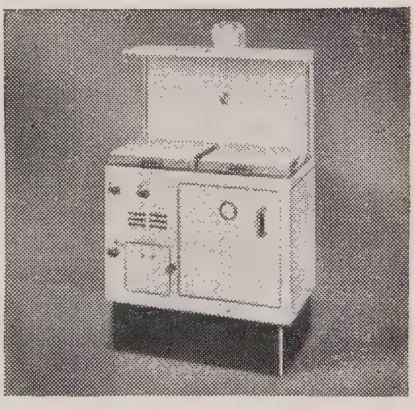
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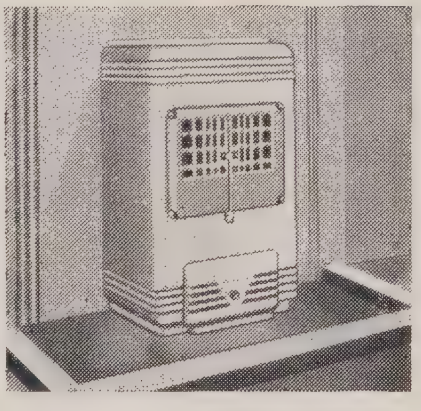
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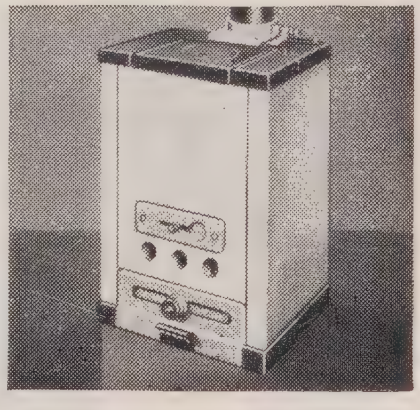
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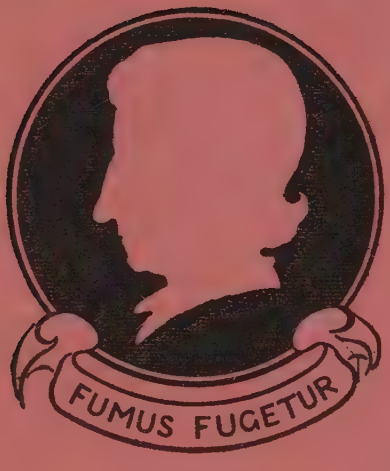


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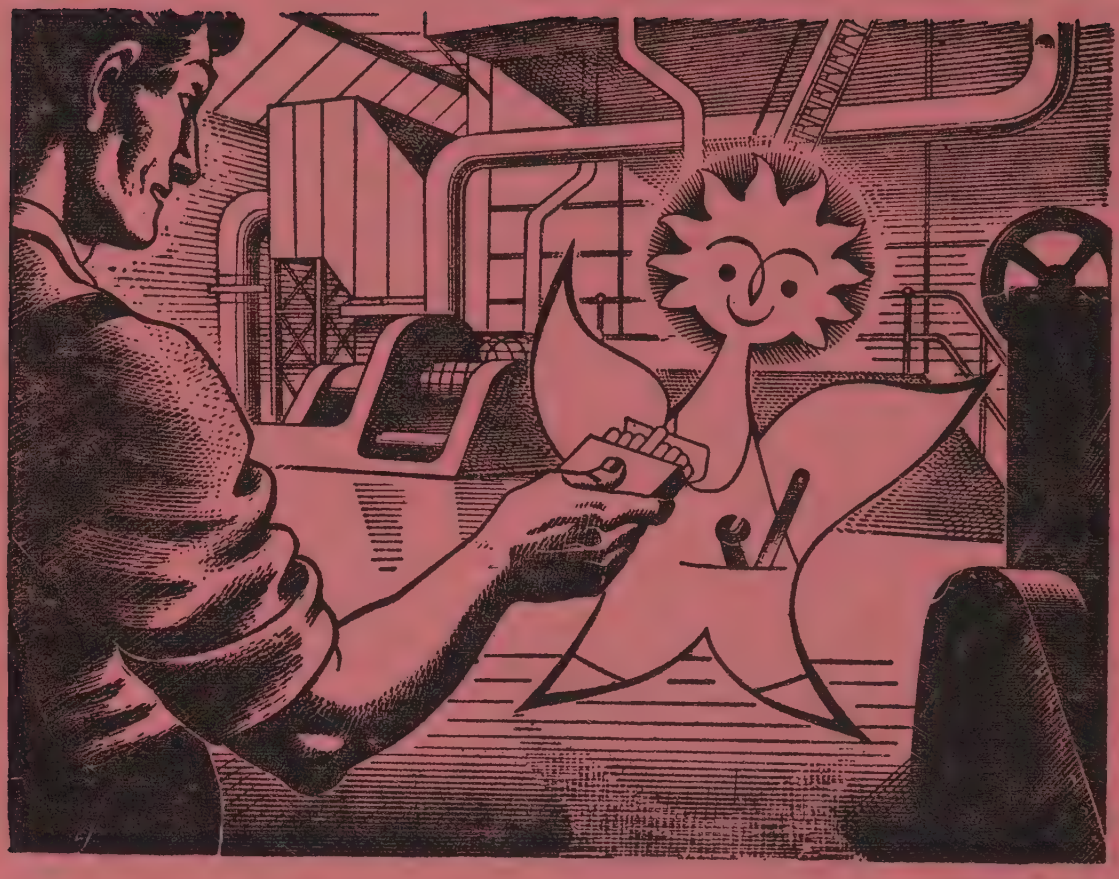
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CONTENTS

N.S.A.S. Section *Page*

Officers of the Society 2
Divisional Councils 2
Executive Council 3
Affiliated Local Authorities 4
22nd ANNUAL REPORT AND DIVISIONAL REPORTS 6
Information about the Society 15
Services to Members 16
The Covenant Subscription Scheme 17
Accounts for the year ended 30th June, 1951 .. 18
Subscriptions List for the year ended 30th June, 1951 20

General Section

The Law Relating to Smoke, etc. 26
Recent Local Legislation 26
The Alkali, etc., Works Act 27
The Ministry of Fuel and Power 27
The Investigation of Atmospheric Pollution and other work of the Fuel Research Station .. 27
Domestic Fuel Policy—the Simon Report 28
Directory of Organizations 30
Recent Papers and Reports : a Selected List .. 32
Guide to Publications 36

Advertisers

British Electrical Development Association *Inside back cover*
Coalite and Chemical Products Ltd. *Outside back cover*
Drummonds Patents (Holdings) Ltd. 41
Gas Council .. .. *Inside front cover*
Ideal Boilers and Radiators Ltd. 38
Midland Rexco Ltd. 42
Mirrlees Watson Co. Ltd. 34
Solid Smokeless Fuels Federation 37
West's Gas Improvements Ltd. 44
Woodall-Duckham Vertical Retort and Oven Construction Co. (1920) Ltd. 33

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Adwick-le-Street, Aireborough, Batley, Bentley-with Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisbrough, Darton, Dearne, Denby Dale, Dewsbury, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth, Hepton, Holmfirth, Horbury, Horsforth, Huddersfield, Hull, Keighley (A), Leeds, Meltham, Mexborough, Mirfield, Morley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rothwell, Royston, Scarborough (A), Sheffield, Rotherham and District Smoke Abatement Committee, Shipley, Stanley (Yorks.), Stockbridge, Swinton, Wakefield Wombwell, York.

West Midlands Division

Bilston, Birmingham, Brierley Hill, Burton-upon-Trent, Cannock, Coventry, Darlaston, Dawley, Dudley, Halesowen, Kidderminster, Leamington Spa, Meriden, Newcastle-under-Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby, Sedgley, Shrewsbury, Smethwick, Stafford (A), Staffordshire C.C., Stoke-on-Trent, Stone, Stourbridge, Tipton, Walsall, Warwickshire C.C., Wednesbury, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Basford, Beeston and Stapleford, Blackwell, Bolsover, Boston, Cambridge (A), Chesterfield, Chesterfield R.D.C., Clowne, Corby, Derby (A), Derby C.C. (Co. Planning Committee—Corporate), Eastwood, Gainsborough, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall Ilkeston, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Louth, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Nottingham, Peterborough, Ripley, Rushden, Southwell, Staveley, Sutton- in-Ashfield, Swadlincote, West Bridgford, Wigston, Worksop.

South-West Division

Abercarn, Aberdare, Abertillery, Bath, Bathavon, Bedwas and Machen, Bristol, Cardiff, Cardiff R.D.C., Cheltenham, Cwmbran, Ebbw Vale, Gellygaer, Gloucester, Kingswood, Llantrisant and Llantwit Fardre, Merthyr Tydfil, Mynyddislwyn, Neath, Newport (Mon.), Norton Radstock, Pontypool, Pontypridd, Poole (A), Portishead, Sodbury, Swansea (A), Swindon, Thornbury, Tredegar, Warmley, Weston-super-Mare (A).

South-East Division

Acton, Aylesbury, Banbury, Barking, Barnes, Battersea, Bedfordshire C.C., Bermondsey, Bexley, Bournemouth (A), Brentford and Chiswick, Brighton, Camberwell, Carshalton (A), Chatham, Chelsea, Chislehurst and Sidcup, Crayford, Dagenham (A), Dartford, Dartford R.D.C., Dunstable, Ealing, East Ham, Eastleigh, East Sussex, C.C. (A), Edmonton, Enfield (A), Erith, Eton, Fareham, Farnborough, Feltham, Finchley, Finsbury, Fulham, Gosport (A), Gravesend, Greenwich (A), Guildford, Hackney, Hammersmith, Hampstead, Harrow, Hayes and Harlington, Heston and Isleworth, Hitchin, Holborn (A), Hornchurch, Kensington (A), Kent C.C. (A), Kingston-upon-Thames, Lambeth (A), Leyton (A), London, City of, Luton (A), Maidenhead, Malden and Coombe, Merton and Morden, Mitcham (A), Orpington, Oxford, Paddington (A), Portsmouth (A), Reading (A), Reigate (A), Richmond, Rochester, St. Albans, St. Marylebone, St. Pancras (A), Shoreditch, Sittingbourne and Milton, Slough, Southall, Southampton (A), Southend-on-Sea (A), Southwark, Southwick, Stepney, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Uxbridge, Walthamstow, Wanstead and Woodford, Watford, Wembley, West Ham (A), Westminster, Willesden, Wimbledon, Windsor, Windsor R.D.C., Wood Green (A).

TWENTY-SECOND ANNUAL REPORT

for the Year ended 31st December, 1951

GENERAL REVIEW

The year 1951 will be noted in the history of smoke prevention as that in which the first smokeless zone came into being. This was the central area of the City of Coventry, and although its actual area is comparatively small its significance is important. It is the beginning of an experiment, or rather an evolution, for which the Society may claim a considerable credit. The principle of smoke prevention by progressive stages was originated, and has been steadily advocated, by the Society, and the remarkable progress of the idea in little more than a decade is something we hope our members will note and appreciate. Plans for smokeless zones in other cities and towns are making progress, and in the Winter 1951, issue of SMOKELESS AIR a report is given of the first public inquiry on such a scheme : that proposed by the City of Salford.

Another development of importance to smoke prevention, though due mainly to the scarcity and cost of solid fuel, is the rapidly increasing popularity of the new improved open grates, closable stoves, and other domestic appliances of higher efficiency. Much comment was made on the recent advice to investors in a newspaper's financial notes to buy shares in the companies making these appliances. This is perhaps as clear an indication as any of the substantial scale of the change-over now proceeding and anticipated. It may not be amiss to mention that, quite apart from the pioneer work of the Coal Smoke Abatement Society in testing the efficiency of open fires early in the century, it may be claimed that it was the Society's persistent and well-informed criticisms of the old open coal fire in the 1930's that stimulated the original research into the production of more efficient open grates for smokeless fuels. During the war years, too, the Society took the initiative in urging improved fuel-burning appliances in all post-war housing and reconstruction. Once more, therefore, the Society may claim a certain credit for what is happening—though not, regrettably, the kind that interests the financial editors !

A further official step for promoting the installation of these improved appliances was taken by the Minister of Health early in the year. In a previous circular (see N.S.A.S. Annual Report for 1948), the Minister required Housing Authorities to install approved new fuel-burning appliances only in houses being built by them. Privately-built houses were not subject to any such restraint until the issue of the new circular (7/51) on 22nd January, 1951. Its intent is shown by its second paragraph :

> " The installation of modern appliances in new houses is so important a part of fuel economy that the Minister thinks this is a factor which local authorities could properly and ought to take into account in considering proposals from private developers. The Minister accordingly requests that all housing authorities at the earliest stage in licensing procedure should inform applicants that they expect houses built under licence to comply with modern standards of domestic heating, and consequently that, in considering applications, they will require to know what are the developer's proposals for heating by solid fuel."

In Parliament there were many questions about smoke abatement, and reference should be made to a debate on the Adjournment in the House of Commons on 27th February, when Mr. Anthony Greenwood (Rossendale) opened a well-informed discussion on the question. Other principal speakers were Commander Noble (Chelsea), Mr. W. Paling (Dewsbury) and Mr. C. S. Lindgren,

Parliamentary Secretary to the Minister of Local Government and Planning.

Many papers of interest have been read during the year, and numerous press articles have indicated a continued, and growing, public interest in the problem. There is a wider understanding of the relationship of smoke and the wastage of coal that is more and more being recognized.

The Society's own activities are described below, but mention should be made of the continued good work of some of the regional committees of local authorities and of an interesting new development in the formation of local consultative committees in three Lancashire towns. These committees, which comprise representatives of the local authority and other interests in the town, were described in SMOKELESS AIR for Spring, 1951.

Mention should also be made of progress in the investigation of air pollution carried out by local authorities under the aegis of the Fuel Research Station. The number of co-operating authorities, and the number of observations being made, have increased most encouragingly. Information about the work is given in another section of the Year Book.

THE SOCIETY

In two material respects the Society's position has improved during the year : a further heavy deficit has been avoided, and membership has continued to increase. To the list of important national interests now giving the Society support through membership must be added the Railway Executive, while, at the end of the year under review, as a result of an appeal included with the resolutions reported below, a further thirty local authorities have become members. During the year the number of new members enrolled was 64, against which must be placed 49 resignations and lapses.

Rising costs of every description—and particularly, as far as the Society is concerned, in postages, paper and printing—are making it increasingly difficult to maintain the present level of activities. As this report is being prepared the Executive Council are considering a proposal to ask all members voluntarily to increase their subscriptions.

The financial situation has again made it impossible to engage new staff or to make progress with a number of projected activities, or even to maintain certain present work as efficiently as it should be done. Nevertheless, it is believed that the outline of the year's work that follows will indicate the extent and importance of what is being done.

The Annual Conference

The annual conference is the most important event in the Society's calendar and that at Blackpool on 26th-28th September, was one of the most successful and informative yet held. The attendance of 428 showed a rise over the previous year, and throughout the programme of papers was received with close attention and a high level of discussion. The second Des Voeux Memorial Lecture, by Dr. J. Bronowski, on " Power and Waste in their Social Setting " was outstanding in its content and the way in which it was delivered. There were thirteen papers in the three sessional meetings, for details of which members are referred to the report in SMOKELESS AIR (Winter, 1951), and to the volume of *Proceedings of the Blackpool Conference*, 1951.

Visits were made to the Marton Gasworks near Blackpool and to the Ribble Generating Stations at Preston. The conference was opened by His Worship the Mayor of Blackpool (Councillor J. Hill), who also most kindly entertained the delegates to a civic reception.

The President

Dame Vera Laughton Mathew's term of office as President of the Society came to an end at Blackpool, and the opportunity must be taken of paying tr

her for all she has done for the Society during the past two years. Both on the platform and in many other ways Dame Vera has been all one hopes for from a President, and for which on behalf of all the Society our grateful appreciation is recorded.

Alderman Professor F. E. Tylecote was unanimously elected as the new President. A member of the Manchester City Council, Emeritus Professor of Medicine in the University of Manchester, and Chairman of the Public Health Committee of the Association of Municipal Corporations, Alderman Tylecote has been a member of the Executive Council for a number of years and has thus an intimate knowledge of the working of the Society and of its objectives and problems. His interest in our progress and his wide experience in so many sectors of our work will be valued by the Society during his term of office.

Conference Resolutions

The following resolutions were passed at the Blackpool Conference :

That this Conference of the National Smoke Abatement Society expresses appreciation of the action of the Government in ensuring that approved fuel-burning appliances only are installed in houses built either by local authorities or by private builders under licence, and, as a further step towards fuel saving and smoke abatement, the Conference urges the prohibition or active discouragement of the manufacture and sale of appliances that do not meet minimum standards of efficiency. Further, whereas the increase in value of premises is normally followed by increased assessment, the fuel situation is so serious that the Conference urges that the modernization of heating equipment should be treated exceptionally and urges that, on the contrary, financial or other inducements should be given to obtain this end.

That this Conference of the National Smoke Abatement Society urges all local authorities and industrial firms and associations to promote smoke abatement and fuel efficiency by assisting in and encouraging the organization of classes for boiler and furnace men and attendance at them of the men concerned.

That this Conference of the National Smoke Abatement Society invites Chambers of Commerce and other business and industrial associations to consider the cost and waste to trade and industry caused by air pollution, and asks them to bring this to the notice of their members with a view to greater co-operation for the prevention of pollution with local authorities and the Society and its Divisions. The Conference records its appreciation of a recent resolution of the National Union of Manufacturers that called for economy in the use of fuel, further research, and the extended use of smokeless fuels.

After the conference the resolutions were forwarded to those concerned including the Government, all Local Authorities, Chambers of Commerce and Trade, etc. To a large extent, of course, the value of such resolutions lies in the discussion and publicity they create, and although a final statement cannot yet be made, it may be said that we have been agreeably surprised at the extent of the interest and support they have aroused. Over three hundred local authorities have replied in a way that shows how carefully the resolutions have been considered, and it has been possible to bring the third resolution directly to the notice of Chambers of Commerce affiliated to the National Association of Chambers of Commerce, and through the National Chamber of Trade to the several hundred Chambers of Trade affiliated to that body. A later and more detailed account will be given in an early number of SMOKELESS AIR.

Executive Council and Committees

The Executive Council has continued to meet at quarterly intervals and its five committees as required. The Council now consists of 33 elected representatives from the Divisions, 17 representatives appointed by national "institution" members, and ex-officio members. Meetings held in London and during the

annual conferences have attendances of between 30 and 40, but the practice of meeting from time to time in the provinces has had to be suspended because of the smaller numbers able to be present. The Committees of the Executive Council are General Purposes and Finance (Chairman, Mr. S. N. Duguid), Technical (Chairman, Dr. R. Lessing ; Deputy Chairman, Mr. G. W. Farquharson), Publicity (Chairman, Mr. F. J. Redstone), Conference (Chairman, Mr. J. J. Matthews), and the Establishment Committee consisting of the Chairmen of all Committees.

The Divisions

The Divisional reports that follow call for no comment, but it is hoped that the activities they record will be noted and appreciated by members. The economy with which they work clearly reveals how much is due to the keenness of their committees and officers, and especially of their honorary secretaries. The formation of a South East Divisional Council is at present being considered.

Publications

The circulation of SMOKELESS AIR has risen to 4,000 copies per issue, and members may have noted the increased size and larger number of advertisements in recent numbers. The latter is important, as the printing of the journal is nowadays much more expensive than even a year or two ago. It is believed that SMOKELESS AIR remains the most effective single means for maintaining the interest of the Society's members, among whom it mainly circulates. It does, however, provide useful publicity outside the Society, in libraries and elsewhere, and there are few issues that do not lead to press comment or abstraction.

The only other publications it has been possible to afford during the year was the first issue of the new *Year Book*, and the annual conference *Proceedings*. General propaganda and educational pamphlets that are needed continue to be held up for lack of funds.

Exhibitions

During 1951 the Society's exhibition material was on display at over 30 local government and other exhibitions, a figure which has broken all previous records. During the peak periods of May to July and September to November it became necessary to work to a very tight schedule and it was only due to the co-operation of certain Local Authorities who dispatched the exhibits direct to the next exhibition instead of returning them to London for possible overhaul and redistribution, that we were able to meet all our exhibition commitments.

The increase in the demand for displays was partly due to special exhibitions organized for the Festival year and reports have been received of large attendances and considerable interest being shown in the exhibits. The South Bank Exhibition and the travelling Festival exhibition included references to smoke abatement and these displays were based on material and information supplied by the Society.

General Publicity

A number of lectures, addresses and papers have been given during the year by officers and members of the Society, in which good use is usually made of the information booklets and other material published by the Society. Many press articles have been published, frequently following interviews or correspondence with journalists and other writers, and sometimes independently of the Society—but showing evidence of the use made of the material in its publications.

Press publicity for meetings, conferences and publication has continued to be gratifying, and for the Blackpool conference for example over 350 cuttings have now been received. An article on this subject appeared in the Winter, 1951 issue of SMOKELESS AIR.

The effects of this publicity are not easy to measure but there is no doubt that its steady continuation over a number of years is slowly but effectively building up that public consciousness of atmospheric pollution and the need for reform that is essential. Because the items that make up this part of the Society's work are so many, and their individual importance may often seem trivial, it is difficult to report on them, and therefore difficult to emphasize their value. Until a more

concentrated—and expensive—publicity campaign can be undertaken the quality of the modest efforts within our means that counts most is perhaps its *persistence.*

Services

The assistance given to writers and speakers, mentioned above, is only one of the many services the Society provides, not only to its own members, but to all who ask. Information of many kinds, advice, loans of material for exhibitions and lectures, etc., are expected from the Society and are freely given. These services in the aggregate take up a considerable amount of time and thought, but they are regarded as an essential part of the work for achieving the Society's objectives.

The Accounts

It will be seen from the accompanying audited statement of accounts that the subscription income rose during the financial year considerably more than did expenditure, with the result that overspending was only £10, compared with £394 the previous year (and £716 in 1949-50). A more correct statement of conference expenses and receipts has been given by including conference printing in that item instead of, as before, in the general printing figure. This change makes clear the fact that there is no substantial surplus from conference registration fees.

Thanks to the new subscriptions further withdrawals from the reserves were not required, and there is little change in the Balance Sheet. It may be noted, however, that the Society's investments, valued at £2,000, constitute a reserve equal to less than six months' expenses. This is a very slender margin and once again therefore we must appeal to all members not only to maintain their own support but to give the Society any help they can in obtaining new subscriptions.

S. N. DUGUID, *Chairman.*

E. W. SMITH, *Hon. Treasurer.*

ARNOLD MARSH, *General Secretary.*

SCOTTISH DIVISION

During the past year the interest of the members in the objects of the Society has been maintained at a high level. There has been an increase in the number of individual members and meetings have been well attended. A satisfactory response has been obtained to the annual winter course in fuel economy, smoke abatement and boiler-house practice.

A very successful conference was held on 24th and 25th May, 1951, in Inverness where hospitality was extended by the Town Council. Addresses were given by Mr. A. L. Dallas, Scottish Regional Officer for the Coal Utilisation Joint Council, Mr. A. D. Trask, British Railways, and Mr. James Edward, Ministry of Fuel and Power, on the first day of the conference, and by Mr. Thomas Ashford, Senior Smoke Inspector, Glasgow Corporation, and Mr. Arnold Marsh, General Secretary of the Society, on the second day. The Town Council arranged a most interesting bus tour for the delegates to the new hydro-electric scheme at Loch Fannich, where the resident engineers gave a most instructive explanation of the workings of the scheme and the difficulties involved and overcome in this great engineering project.

Last year the Division made representations that the regulations governing the sale of coal, including coke and other smokeless fuels, be amended to permit the sale of smokeless fuels in quantities less than 1 cwt. and it is gratifying to note that this has become a recommendation of the Committee on Weights and Measures Legislation.

At a recent meeting the Scottish Council agreed that all local authorities be circularized recommending that all necessary steps be taken to reduce the pollution of the atmosphere and danger to health caused by the increasing excessive emission of fumes from Diesel road vehicles.

N. P. FRASER, *Hon. Secretary.*

NORTH WEST DIVISION

1951 has been a year of steady progress, and although no outstanding developments can be recorded, there is unmistakable evidence of a growing interest in the cause of smoke abatement in the North West. It is encouraging to hear reports from various sources of the increasing demand for improved domestic heating appliances which appear to be gaining popularity in the North West. Whilst it is probably true that the prime motive may be fuel conservation, nevertheless this development is welcomed as a step in the right direction towards the cleaner atmosphere which could be secured when there is an adequate supply of solid smokeless fuels.

The Divisional Council met on four occasions during 1951, one meeting being held in Preston, the others in Manchester, the average attendance being 18. The Council has continued to enjoy the active support of various professional and other organizations through representatives and during the year similar liaison was secured with the Burnley and District Smoke Abatement Advisory Committee, the Women's Advisory Council on Solid Fuel, the North Western Gas Board and the Railway Executive. Further developments in this extension of our sphere of influence are anticipated at an early date.

A matter of interest which arose during the year concerned a suggestion that steps should be taken to obtain the co-operation of industrial and commercial undertakings throughout the country in the elimination of atmospheric pollution. This subject was subsequently dealt with by a resolution adopted at the Blackpool conference.

Preliminary discussion also took place with reference to the supply and distribution of solid smokeless fuels. Further consideration of this important subject will doubtless be given during the forthcoming year with a view to recommending such action as is practicable towards improvement in the present unsatisfactory position which is proving to be such a formidable obstacle to progress in smoke abatement, particularly in the domestic field.

Excellent meetings have again been held jointly with the North Western Section of the Institute of Fuel. At the first a paper on "The General Aspects of Grit and Dust Collection from Industrial Chimneys" was delivered by J. C. Cleeves, Esq., M.A.(CAMBS.), and the second meeting featured an address on "Progress in Domestic Heating Research," by Dr. A. C. Monkhouse of the Fuel Research Station. At both these meetings much valuable and interesting information was given by the speakers and the subsequent discussions testified to the efficacy of these arrangements.

A speaker was supplied upon request for a meeting of a discussion group at Timperley, Cheshire, and a very successful session was held.

The Annual General Meeting of the Division featured a discussion upon Local Smoke Abatement Committees prefaced by short progress reports by Councillor J. Longton, M.M., for the Local Consultative Committee at Widnes, and Councillor W. Heap and Dr. G. O'Brien for the more recently inaugurated Committees at Burnley and St. Helens. The Divisional Council hopes to have the opportunity of meeting these Committees in the forthcoming year.

H. MOORE, *Hon. Secretary.*

YORKSHIRE DIVISION

During the year 1951 the Yorkshire Divisional Council suffered the loss of their Chairman owing to the resignation of Mr. T. Henry Turner, as a consequence of his being transferred by British Railways from Doncaster to Derby early in the year. Mr. Turner who had been Chairman of the Yorkshire Division since its inception in 1947, has been succeeded as Chairman by Mr. John W. Beaumont, with Mr. James Law as Deputy Chairman.

During the past year the Yorkshire Divisional Council has been investigating

the causes and incidence of atmospheric pollution of domestic and industrial origin throughout the Yorkshire area and has had some excellent meetings and very instructive visits.

The first meeting, held at Harrogate at the invitation of the Chairman of Health Committee, was marred by a very heavy and continuous downpour of rain which caused the abandonment of the projected visit to the Meteorological Station. Mr. E. Dodsworth, Chief Sanitary Inspector of Harrogate gave a very interesting talk on Harrogate's particular atmospheric pollution problem, i.e. domestic and hotel smoke.

On 20th June, the Council paid a return visit to Sheffield and after a morning business meeting visited the Thorncliffe works of Messrs. Newton Chambers & Co. Ltd., where various domestic fuel burning appliances manufactured by this firm were explained and inspected under actual working conditions. These appliances were also seen during moulding and later stages of manufacture ; in all a most satisfactory and informative visit.

The Mayor of Rotherham officially welcomed the Council on 1st August, and after a discussion on " Colliery and Industrial Smoke " ably introduced by the Deputy Chairman, Mr. James Law, the Council were entertained to lunch by the Mayor, Councillor Shayler, J.P. By invitation of Messrs. Steel, Peech & Tozer (Branch of the United Steel Companies) the Council visited their Templeborough and Ickles works and were shown what that Company had done with regard to the minimization of atmospheric pollution in the various departments throughout their works.

After the business meeting in Leeds on 5th October, fifteen members of the Council were taken on a tour of inspection of the new power station at Skelton Grange, Leeds, by representatives of the British Electricity Authority (Yorkshire Division). This visit together with the explanatory comments by the Engineer in Charge greatly impressed the Council with the magnitude of the task of the B.E.A. and of their sincerity in taking all steps that are reasonably practicable with regard to the prevention of atmospheric pollution.

Educational activities in the Division have been well to the fore this year. Talks and lectures have been given by members to varied organizations in the Yorkshire area, with special emphasis on schools, youth clubs and other youth organizations. Courses of theoretical instruction and practical training for boiler firemen have been arranged at technical colleges in the Division and, at Kingston-upon-Hull, a one-week exhibition devoted exclusively to smoke abatement was arranged by the Public Health Department as one of a series relating to their work.

The Fifth Annual General Meeting of the Yorkshire Division held in the Civic Hall, Leeds, in November, was addressed by Dr. A. Parker, Director of Fuel Research on the work of the Fuel Research Station. Dr. Parker's lecture, which was illustrated, was received with acclamation by the 65 delegates present.

JAMES GOODFELLOW,

Hon. Secretary.

WEST MIDLANDS DIVISION

The Division is now established and the process of building up a useful branch of the Society on good foundations continues with an active and interested Management Committee. The rules of the constitution are simple and adaptable with provisions for effecting alterations if so desired by the members, and indeed, it is considered that it would be no derogation of the practical system of representation within the Division if a change of rules were deemed necessary, because to maintain otherwise, would be to imply that the fabric and structure of our representation methods were static and unalterable.

The Division includes the counties of Warwickshire, Staffordshire, Worcestershire and Shropshire, and held its first Annual General Meeting on 12th April,

1951, under the chairmanship of Councillor J. M. Morrin (Birmingham).

The morning proceedings opened with an address of welcome by Councillor W. F. Smith, Chairman of the Birmingham Health Committee, and Mr. S. N. Duguid, Chairman of the Executive Council, followed by a short informal talk on the work and ideals of the Society. Other items included the results of the election for officers, an address by Mr. Arnold Marsh on the various aspects of Divisional work, and a description of the steam raising plant at Messrs. Cadbury's, Bournville.

During the afternoon, members visited this well known and extensive factory, and were conducted through many departments, including the boiler house of this marvellous factory, where the 87 delegates and friends gained an insight into the organisation regarding chocolate preparation and Staff Welfare Services for which this firm is renowned. Mr. A. H. Newey, Chief Engineer, welcomed the delegates on behalf of the Company and an excellent tea was provided.

During the year the Management Committee have discussed a variety of items, such as, the tendering of advice on industrial smoke and dust problems, and the examination of a new patented design of an air convector system as applied to domestic heating appliances.

The Division has been represented at several meetings and conferences, where subjects closely allied to Smoke Abatement have been under discussion such as Smokeless Zones and Prior Approval.

It is pleasing to report that through direct efforts and contacts, the Division has been instrumental in interesting several industrial firms regarding the use of advertising space in SMOKELESS AIR.

There has been a slight increase in membership, which includes, private members, Local Authorities and representatives of National Bodies, and it is planned, as time goes on, to organize meetings throughout the area, in order to stimulate further interest in our work.

The Division was well represented at the Blackpool Conference, several members making useful contributions, either by submitting papers, or in the discussions, and it was pleasing to note that Mr. Alderman F. W. Perry, Smethwick, was elected Vice-President of the Society in recognition of his support and interest for many years in the Society's work, and also, that Dr. W. R. Martine was elected to be one of the Deputy Chairmen of the Executive Council.

On reflection one feels that steady progress has been made, and that with new ideas for publicity, and the creation of interest within the public minds together with generous support by the press throughout the area, we can look forward to further progress with confidence.

G. W. FARQUHARSON,
Hon. Secretary.

EAST MIDLANDS DIVISION

The East Midlands Division of the Society has continued during 1951 its policy of widening interest in the subject of atmospheric pollution and smoke abatement. . Its drive for increased membership, commenced during 1950, met with some further success during the year under review.

The area covered by the Division, extending from the County of Suffolk in the south to Nottinghamshire in the north, from Lincolnshire in the east to Derbyshire in the west, is very large and difficulties of travel within the area are such that the Divisional Council has formulated proposals with a view to improving the Divisional organization.

Activities within the Division have gained valuable publicity indicating increased interest on the part of the press and the public in our work. Invitations to address meetings of various bodies on the subject of atmospheric pollution have been readily accepted.

The following meetings of the Society were held in the Division during 1951 :
Bolsover, 19th April—Delegates were officially welcomed to Bolsover by

Councillor Jennings at a meeting held in the Council Chamber. A visit was made during the afternoon to the works of the Derbyshire Coalite Company Ltd. and the refinery of the British Diesel Oil and Petrol Company Ltd. Delegates were conducted over the extensive works dealing with the manufacture of smokeless fuel and the extraction of various by-products from coal. The processes were explained by A. C. Hazel, Esq., M.INST.F.

Staythorpe, 5th July—Visit to the Staythorpe Power Station by invitation of the Divisional Controller, British Electricity Authority. The delegates were addressed by E. H. Taylor, Esq., A.M.I.MECH.E., A.M.I.E.E., Power Station Superintendent, on "Smoke Abatement and its relationship to the Modern Power Station." Delegates were officially welcomed to the Southwell Rural District by Lt.-Col. G. H. Vere-Laurie, D.L., Chairman of the Rural District Council.

Nottingham, 27th July—A meeting of the Divisional Council.

Corby, 18th October—Visit by the Divisional Council to the Corby works of Messrs. Stewarts & Lloyds Ltd. where the delegates were conducted over the coke ovens, Bessemer plant and rolling mills. A meeting of the Divisional Council was held and the members were welcomed to Corby and entertained to luncheon by the Chairman of the Divisional Council (Councillor Rev. A. Brooke Westcott) in his capacity as Chairman of the Corby Urban District Council. The meeting proved of great interest to the members in that they were able to obtain first-hand information regarding atmospheric pollution at Corby and to hear from the General Manager of the works (Mr. J. Glen) of steps which were being taken by the Company to overcome the problem of smoke and grit emissions from iron and steel processes.

1951 was undoubtedly a year of progress in the work of the Society in the East Midlands.

A. WADE, *Hon. Secretary.*

Proceedings

of the

Margate (1950) and Blackpool (1951) Conferences

Together, these two volumes contain more authoritative and up-to-date discussion on smoke prevention than is likely to be found anywhere else. In addition to two Presidential Addresses by Dame Vera Laughton Mathews and the first two Des Vœux Memorial Lectures—"Towards the Better Use of Coal," by Dr. D. T. A. Townend, and "Power and waste in their Social Setting," by Dr. J. Bronowski, the following subjects are covered : smoke and health ; smoke prevention in the home and in new housing ; the railway smoke problem ; the smokeless operation of small steam raising plant—hand-fired boilers, chain grate stokers, coking and sprinkling stokers, underfeed stokers, and smoke indicating devices ; and policies for the prevention of smoke in the collieries, gasworks, electricity generating stations, iron and steel manufacture, and cement manufacture. With many illustrations and discussions on the papers.

Prices

Margate Proceedings .. .. 6s. (post 3d.)
Blackpool Proceedings .. .. 7s. 6d. (post 3d.)

Special Offer

The two volumes, ordered together .. 10s. (post 5d.)

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired area organization, the Society is now composed of the following geographical Divisions : (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arisihg from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given on the next page.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less that the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions*

INDIVIDUAL MEMBERS—Not less than 10s. 6d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations :

Less than 25,000	..	2 guineas
25,000 to 50,000	..	3 ,,
50,000 to 75,000	..	4 ,,
75,000 to 100,000	..	5 ,,
100,000 to 250,000	..	10 ,,
250,000 to 500,000	..	15 ,,
Over 500,000 ..	..	25 ,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 10 guineas for members appointing two Representatives ; not less than 5 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terjs as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for SMOKELESS AIR and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

** In an appeal recently made on behalf of the Executive Council to all members, a voluntary increase in subscriptions, to enable the Society to meet the serious rise in costs, was invited.*

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows :

Less than 100,000	2
100,000 to 25,0000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides and Film Strips

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages. Film strips are at present in course of preparation.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available on loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to Chandos House by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available : (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) New prize-winning photo-colour poster 30 in. × 20 in. Price 6d. each. (3) New Pictorial chart primarily for school use. " These are the Things that Smoke Does," 30 in. × 20 in. Price 6d. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. 6d. in the £ the gross amount is £9 10s. 6d., and the Society thus receives £4 10s. 6d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be snorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advanatage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name) ..... *of* .....
(address) ..... (description or occupation) .....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of ....., 195....., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of* .....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this .....
day of ..... 195.....

Signed, sealed and delivered by the said .....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....

(Signature) .....

Income and Expenditure Account, Year ended June 30th, 1951

Year ended June 30th, 1950	Income	£ s. d.	£ s. d.
£			
3,678	Subscriptions		4,609 7 11
112	Sale of Literature		110 13 0
44	Repayment of Income Tax		41 3 10
	Conference Fees	677 19 6	
	Less—Expenses and Printing	676 15 8	
430*			1 3 10
27	Sundry Receipts		6 1 7
	Dividends from Investments, etc.		
5	Commercial Union Assurance Co. Ltd.		5 14 1
6	British Transport		6 2 8
12	Interest—Manchester and Salford Savings Bank		12 11 0
18	Post Office Savings Bank		10 1 2
394	Excess of Expenditure over Income		10 7 7
£4,726			£4,813 6 8

* Excluding Cost of Printing.

Year ended June 30th, 1950	Expenditure	£ s. d.	£ s. d.
£			
2,317	Salaries and Fees		2,416 8 8
489	Rent, Rates, Gas, Water and Heating		488 11 1
185	Office Supplies and Stationery		130 15 4
36	Travelling Expenses		45 9 1
564	General Expenses, Postages and Telephone		576 19 4
155	Divisional Expenses		102 2 5
	666 Printing *Smokeless Air*	987 18 6	
	300 *Less*—Receipts from Advertisements	440 11 0	
366			547 7 6
504*	Printing and Publishing Booklets, etc.		383 11 3
108	Staff Pension Scheme		114 14 0
2	Furniture and Fittings		7 8 0
£4,726			£4,813 6 8

* Including Conference

Defence Bond Fund

£		£ s. d.	£		£ s. d.
530	Balance, June 30th, 1950	547 0 9	547	Balance, June 30th, 1951	561 11 7
17	Interest	14 10 10			
£547		£561 11 7	£547		£561 11 7

Balance Sheet, June 30th, 1951

£		£ s. d.	£ s. d.	£		£ s. d.	£ s. d.
	SURPLUS				INVESTMENTS (General)		
1,589	Balance as at June 30th, 1950	1,196 8 8			Commercial Union Assurance Co.—		
393	*Less*—Excess of Expenditure over Income	10 17 7		205	£25 Stock at cost	205 11 0	
			1,186 1 1		British Transport—		
1,196				279	£371 9s. 10d. 3% Guaranteed Stock, 1978-88	279 5 11	
225	Fees received in advance (on account of 1951 Conference)	278 15 6		319	Post Office Savings Bank	329 6 0	
—	*Less*—Printing paid (on account of 1951 Conference)	23 3 3			Manchester and Salford Savings Bank—		
			255 12 3	504	Deposit	516 5 2	
4	Subscriptions in advance		3 0 0				1,330 8 1
	DEFENCE BOND FUND			108	Cash at Bank and in hand (General)		104 5 3
547	Balance		561 11 7		DEFENCE BOND FUND		
				170	3% Defence Bonds	170 0 0	
				375	2½% Defence Bonds	390 0 0	
				2	Cash in hand	1 11 7	
							561 11 7
				10	Electricity Deposit		10 0 0
£1,972			£2,006 4 11	£1,972			£2,006 4 11

Audited and found correct.
ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

September 5th, 1951.

Divisional Accounts: Summary

Division	*Year ended*	*Commencing Balance*		*Grants from Headquarters*		*Other Income*		*Total*		*Expenditure*		*Closing Balance*	
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.	
Scotland	31.3.51	176 3 7		100 0 0	(*a*)	112 5 6		388 9 1		(*b*) 196 12 6		191 16 7	
North West	31.3.51	127 14 1		25 0 0		4 10 5		157 4 6		54 11 7		102 12 11	
North East	30.6.51	55 14 9		30 0 0		1 6 2		87 0 11		15 18 9		71 2 2	
Yorkshire	30.6.51	12 18 2		20 0 0		—		32 18 2		20 6 3		12 11 11	
West Midlands	30.6.51	—		20 0 0		—		20 0 0		17 9 7		2 10 5	
East Midlands	31.3.51	21 1 7		—		—		21 1 7		9 6 6		11 15 1	
Totals		393 12 2		195 0 0		118 2 1		706 14 3		314 5 2		392 9 1	

NOTES

(*a*) and (*b*) include fees and expenses for Conference and Firemen's Classes.

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1951

* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation	10	10	0
Airdrie Corporation	3	3	0
Ardrossan Corporation	2	2	0
Ayr Corporation	3	3	0
Ayr County Council (1950)	2	6	0
(1951)	2	6	0
British Electricity Authority—			
South East Scotland Div.	10	10	0
South West Scotland Div.	10	10	0
Brown, Robert C.	1	1	0
Clackmannan County Council	3	3	0
Clydebank Corporation	3	3	0
Coatbridge Corporation	3	3	0
Currie, T. S.		10	6
Dumbarton Corporation	2	2	0
Dunbarton County Council	4	4	0
Dundee Corporation	10	10	0
Dunfermline Corporation	3	3	0
East Kilbride Development Corporation	5	5	0
Edinburgh Corporation	15	15	0
Edward, J.		10	6
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd.		10	6
Glasgow Corporation	26	5	0
Glasgow Women Citizens' Association	1	1	0
Grattidge, H. H.		5	0
Greenock Corporation	5	5	0
Hamilton Corporation	3	3	0
Hawick Corporation	2	2	0
Heriot-Watt College	1	1	0
Howden, James & Co. Ltd.	10	10	0
Inverness Corporation	3	3	0
Irvine Corporation	2	2	0
Jedburgh Corporation	2	2	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	2	2	0
Jones, Samuel & Co. Ltd.	5	5	0
Kilmarnock Corporation	3	3	0
Kilsyth Corporation	2	2	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	15	15	0
Macmillan, A. M.	1	1	0
McCallum & Craigie Ltd.		10	6
Motherwell & Wishaw Corporation	4	4	0
Paisley Corporation	5	5	0
Perth Corporation	3	3	0
Port Glasgow Corporation	2	2	0
Ramsay, Sir James Douglas	1	0	0
Renfrew Corporation	2	2	0
Renfrew County Council	10	10	0
Ritchie, G. B.		10	6
Roberton, Bailie, Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Association of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Associations	2	2	0
Scottish Gas Board	73	10	0
Scottish Junior Gas Association	1	1	0
Scott Par, Dr. and Mrs. S. D.		10	6
Smith, Mrs. Brownhill	1	1	0
South East Scotland Electricity Board	10	10	0
South West Scotland Electricity Board	10	10	0
*Stead, G. W. (1950)	10	0	0
(1951)	10	0	0
Stirling County Council	10	10	0
Waldie, James & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		10	6

Northern Ireland Division

	£	s.	d.
Young, Miss A. C.		10	0

North Western Division

	£	s.	d.
Abram U.D.C.	2	2	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.		15	6
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Ashton, Bros. & Co. Ltd.	2	2	0
Ashton-under-Lyne Corporation	3	3	0
Atherton U.D.C.	2	2	0
Barlow, D. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co. Ltd.	2	2	0
Bayes, Councillor Mrs. M.	2	2	0
Beard, E.	1	1	0
Beattie, E & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	10	10	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	10	10	0
Bolton Corporation (1950)	10	10	0
(1951)	10	10	0
Bootle Corporation	5	5	0
British Electricity Authority—			
Merseyside & North Wales Div.	10	10	0
North Western Division	10	10	0
British Insulated Callender's Cables Ltd.	5	5	0
Burnley Corporation	5	5	0
Burnley R.D.C.	2	2	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Carlisle Corporation	4	4	0
Chadderton U.D.C.	3	3	0
Cheadle & Gatley U.D.C.	3	3	0
Church U.D.C.	2	2	0
Clitheroe Corporation	2	2	0
Cooper, Miss I.	1	1	0
Craven, W. D. C.	2	2	0
Crewe Corporation	4	4	0
Crompton U.D.C.	2	2	0
Crosby Corporation	4	4	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Davies, L.		10	6
Denton U.D.C.	2	2	0
Droylsden U.D.C.	3	3	0
Duguid, Mr. and Mrs. S.	2	2	0
Eccles Corporation	3	3	0
Failsworth U.D.C.	2	2	0

	£	s.	d.
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
Forrester, R. E.	1	0	0
Franklin, N. J.		10	6
Gandy, Mrs. L. M.		10	6
Gavaghan, Mrs. L. A.		10	6
Glossop Corporation	2	2	0
Griffel, Dr. W.		10	6
Griffiths, The Misses		10	6
Hale, U.D.C.	2	2	0
Hall, E. N.		10	6
Hall & Pickles Ltd.	10	10	0
Hancock, A.	1	1	0
Hardy, G. & Co.	2	2	0
Hartley, G. E.		10	6
Hay, Dr. J.	1	1	0
Hayhurst, Mr. H. and Mrs. L.	1	1	0
Hazel Grove & Bramhall U.D.C.	2	2	0
*Herbert, J. L.		10	6
Herford, Miss A. C.		10	6
Hetherington, H.		10	6
Hillier, Miss E. M.	1	1	0
Hope, S.	1	1	0
Horwich U.D.C.	2	2	0
Hutchinson, Col. R.		10	6
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	3	3	0
Hyde, F.	1	1	0
Irlam U.D.C.	2	2	0
Jackson, C. L.	1	1	0
Jewsbury, S.		10	6
Johnston, S.		5	0
Kay, Miss D.		7	6
Keddie, Dr. J. L. Chalmers		10	6
Kennedy, W. B.		10	6
*Kirkman, P. D.	1	1	0
*Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	26	5	0
Lancaster Corporation	3	3	0
Lane, Mrs. W.		10	6
Langford, A. S.		10	6
Lee, Sir Kenneth	1	1	0
Lees, Miss M.	1	1	0
Leigh Corporation	3	3	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation	26	5	0
Longdendale U.D.C.	2	2	0
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	0
Manchester Corporation	26	5	0
Manchester & District Smoke Abatement Committee (1950)	10	10	0
(1951)	10	10	0
Marple U.D.C.	2	2	0
Mather, L. E.	1	1	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
McLaughlin, T. C.		10	6
Melland, Mrs. W.	1	1	0
Merseyside & North Wales Electricity Board	10	10	0
Metropolitan-Vickers Electricity Co. Ltd.	6	6	0
Middleton Corporation	4	4	0
Mitchell, L. A.	1	1	0
Morrison, Dr. J.	1	1	0
Nantwich U.D.C.	2	2	0
Nelson Corporation	3	3	0
Newton-le-Willows U.D.C.	2	2	0
Northern Gas Board, Carlisle	1	11	6
,, Penrith		10	6
,, Workington	1	11	6
North Western Electricity Board	10	0	0
North Western Gas Board	105	0	0
Northwich U.D.C. (1950)	2	2	0
(1951)	2	2	0
Oldham Corporation	10	10	0
Oliver, P. M.	1	1	0
Ormskirk U.D.C.	2	2	0
Orr, J. H.		10	6
Parker, H.	1	0	0
Pear, Mrs. C.		10	6
Pike, Miss I. M.		15	0
*Polding, W. W.		10	6
Pontefract Bros.	2	2	0
Preston Corporation	10	10	0
Priestley, I.		10	6
Radcliffe Corporation	2	2	0
Rawtenstall Corporation	3	3	0
Refuge Assurance Company	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	2	2	0
Richards, Mrs. E.		10	0
Robinson, Alderman J.	1	0	0
Rochdale Corporation	5	5	0
Royton U.D.C.	2	2	0
St. Helens Corporation	10	10	0
Sale Corporation	3	3	0
Salford Corporation	10	10	0
Sanderson, R. C.	1	1	0
Saunders, P. H.		10	6
Scott, Mrs. A. O.		10	0
Shamash, E.	1	0	0
Shaw, Mrs. M.		10	6
Shaw, R. D.		10	6
Simon of Wythenshawe, Lord	2	2	0
Simon Carves Ltd.	5	5	0
*Smith, H.	5	5	0
Smith, H. J.		10	6
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation (1950)	2	2	0
(1951)	2	2	0
Stockport Corporation	10	10	0
Stretford Corporation	4	4	0
*Swale, W. E.		10	6
Swinton & Pendlebury Corporation	3	3	0
Tarbuck, G. B.		10	6
Taylor, C. P.		10	6
*Taylor, H. F.		12	6
Taylor, Miss M. R.	1	0	0
Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd.	5	5	0
Tootal, Broadhurst, Lee & Co. Ltd.	5	5	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Walton, T.		10	6
Warrington Corporation	5	5	0
*Wells, Dr. N. H.		5	0
West's Gas Improvement Co. Ltd.	10	10	0
Whaley Bridge U.D.C.	2	2	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	5	5	0
Wigglesworth, Miss E.		10	6
Williamson, J. G.		15	0
Wilmslow U.D.C.	2	2	0
Winder, F.		10	6
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	4	4	0
Young, J. W.	1	1	0

North East Division

Angus, Col. E. G.	3	3	0
Ashington U.D.C.	3	3	0
Bedlingtonshire U.D.C.	3	3	0
Berwick-on-Tweed Corporation	2	2	0
Billingham U.D.C.	2	2	0
Blaydon U.D.C.	3	3	0
Brandon & Byshottles U.D.C.	2	2	0
British Electricity Authority—North Eastern Division	10	10	0
Caller, Dr. S.		10	6
Chester-le-Street R.D.C.	2	2	0
Chester-le-Street U.D.C.	2	2	0
Consett U.D.C.	3	3	0
Darlington Corporation	5	5	0
Durham R.D.C.	3	3	0
Felling U.D.C.	2	2	0

	£	s.	d.
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Gosforth U.D.C.	2	2	0
Green, Miss E.		10	6
Hartlepool Corporation	2	2	0
Hebburn U.D.C.	2	2	0
Hetton U.D.C.	2	2	0
Houghton-le-Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	10	10	0
*Isaac, P. C. G.		10	6
Jarrow Corporation	3	3	0
Lanchester R.D.C.	2	2	0
Middlesbrough Corporation	10	10	0
Newburn U.D.C.	2	2	0
Newcastle-upon-Tyne Corporation	15	15	0
North Eastern Electricity Board	10	10	0
Northern Gas Board, Blyth	1	1	0
,, Darlington	3	3	0
,, Hexham		10	6
,, Middlesbrough	4	4	0
,, Newcastle-on-Tyne	21	0	0
,, Stockton-on-Tees	4	4	0
,, Sunderland	4	4	0
Northumberland County Council	15	15	0
Palmer, F. E.	2	2	0
Power Gas Corporation Ltd.	5	5	0
Prudhoe U.D.C.	2	2	2
Redcar Corporation	2	2	0
Ryton U.D.C.	2	2	0
Saltburn & Marske-by-the-Sea U.D.C.	2	2	0
Seaham U.D.C.	3	3	0
Sedgefield R.D.C.	3	3	0
South Shields Corporation	10	10	0
Stanley (Co. Durham) U.D.C.	4	4	0
Stockton-on-Tees Corporation	4	4	0
Sunderland Corporation	10	10	0
Wallsend Corporation	3	3	0
Washington U.D.C.	2	2	0
West Hartlepool Corporation	4	4	0
Whickham U.D.C.	2	2	0

Yorkshire Division

Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Bacon, N. P.		13	6
Batley Corporation	3	3	0
Beaumont, J. W.		10	6
Bentley-with-Arksey U.D.C.	2	2	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0
Bradford Corporation	15	15	0
Bradford Civic Society	1	1	0
Bray, G. & Co.	10	10	0
Bridlington Corporation	2	2	0
Brighouse Corporation	3	3	0
British Electricity Authority—Yorkshire Division	10	10	0
Brown, G. L.	2	2	0
*Carpenter, V. A.		10	6
Castleford U.D.C.	3	3	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, E.		10	6
Colne Valley U.D.C.	2	2	0
Conisbrough U.D.C.	2	2	0
Dearne U.D.C.	2	2	0
Denby Dale U.D.C.	2	2	0
Dewsbury Corporation	4	4	0
Doncaster Civic Trust	2	2	0
Doncaster Corporation	4	4	0
Doncaster R.D.C.	4	4	0
Dronfield U.D.C.	2	2	0
Givens, W.		10	6
Goldstern, W.		10	6
Goodfellow, J.		10	6
Graucob, F. Ltd.	2	2	0
Halifax Corporation	5	5	0
Hall, J. A.		10	6
Harris, J.		10	6
Harrogate Corporation	3	3	0
Hemsworth R.D.C.	3	3	0
Holdsworth, R. Y.	1	1	0
*Holmes, W. G.	2	10	0
Holmes, W. C. & Co. Ltd.	10	10	0
Holmfirth U.D.C.	2	2	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Jefferson, P.		10	6
Jervis, Dr. J. Johnstone		10	6
Keighley Corporation	2	2	0
Leeds Corporation	15	15	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		10	6
Marshall, G. C.		5	0
Meltham U.D.C.	2	2	0
Mexborough U.D.C.	2	2	0
Mirfield U.D.C.	2	2	0
Morley Corporation	3	3	0
Morton, Mrs. D. F. (1950)		10	6
(1951)		10	6
North Eastern Gas Board	42	0	0
Osborne, Dr. H.	1	1	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Queensbury & Shelf U.D.C.	2	2	0
Rawmarsh U.D.C.	2	2	0
Reeder, E. C.		10	6
Rothwell U.D.C.	2	2	0
Scarborough Corporation	2	2	0
Scriven, Miss J.		10	6
*Severs, J. S.	2	0	0
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	3	3	0
Stanley (Yorks) U.D.C.	2	2	0
Stockbridge U.D.C.	2	2	0
Swinton U.D.C.	2	2	0
United Steel Companies Ltd.	26	5	0
Wakefield Corporation	5	5	0
Warwick, H.		10	6
West Riding of Yorkshire Regional Smoke Abatement Committee	2	2	0
Wilkinson, J. R.		10	6
Wombwell U.D.C.	2	2	0
Wood, F. T.		10	6
York Corporation	5	5	0
Yorkshire Electricity Board	10	10	0

West Midlands Division

Barrow, H.		5	0
Best, J. K.		10	6
Bilston Corporation	5	5	0
Birmingham Corporation (1950)	26	5	0
(1951)	26	5	0
Brierley Hill U.D.C.	3	3	0
British Electricity Authority—Midlands Division	10	10	0
Burton-upon-Trent Corporation	3	3	0
Cannock U.D.C.	3	3	0
Cadbury Bros. Ltd.	2	2	0
Coventry Corporation	10	10	0
Darlaston U.D.C.	2	2	0
Dudley Corporation	4	4	0
Gillet, Mr. and Mrs. J. A.	2	2	0
Halesowen Corporation	3	3	0
Hall, G. R.		10	6
Harris & Co. Ltd. (1950)	1	11	6
(1951)	1	11	6
Hayes, Mrs. A. L.		10	6
Kidderminster Corporation	3	3	0
Manger's Salt Works Ltd.		10	6
Meriden R.D.C.	3	3	0
Midlands Electricity Board	10	10	0
Midlands Joint Advisory Council for Smoke Abatement	2	2	0
Moren-Brown, H.		10	6
Newcastle-under-Lyme Corporation	4	4	0

	£	s.	d.
Nuneaton Corporation	4	4	0
Oldbury Corporation	3	3	0
*Pringle, Dr. E.		10	6
Radiation Ltd.	10	10	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	3	3	0
Sedgley U.D.C.	2	2	0
Smart, R. Cecil		5	0
Smethwick Corporation	5	5	0
Stafford Corporation	1	1	0
Staffordshire County Council	26	5	0
Stoke-on-Trent Corporation	15	15	0
Stone R.D.C.	2	2	0
Stourbridge Corporation	3	3	0
Tipton Corporation	3	3	0
Trezise, W. E.	1	1	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Warwickshire County Council	15	15	0
Wednesbury Corporation	3	3	0
West Bromwich Corporation	5	5	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	10	10	0
Wright, J. (1950)	1	1	0
(1951)	1	1	0

East Midlands Division

*Barash, Dr. M.		10	6
Basford R.D.C.	3	3	0
Beeston and Stapleford U.D.C.	3	3	0
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	2	2	0
Boston Corporation	2	2	0
British Electricity Authority—East Midlands Division	10	10	0
Brown, J. A.		10	6
Cambridge Corporation	1	1	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Chesterfield R.D.C.	5	5	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Coke Oven Managers' Association	5	5	0
Collier, Dr. W. A. L.		10	6
Corby U.D.C.	2	2	0
Dearden, John		10	6
Derby Corporation	1	1	0
Derbyshire County Council	10	10	0
Earnshaw, G. H.		10	6
Eastern Electricity Board	10	10	0
East Midlands Electricity Board	10	10	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	2	2	0
Fry, Miss A. R.	1	1	0
Gainsborough U.D.C.	2	2	0
Great Yarmouth Corporation	4	4	0
Grimsby Corporation	5	5	0
Gurney, J.	1	1	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	3	3	0
Hucknall U.D.C.	2	2	0
Kettering Corporation	3	3	0
King's Lynn Corporation	2	2	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Leicester Corporation	15	15	0
Lewis, Mrs. A. B.	1	0	0
Lincoln Corporation	5	5	0
Long Eaton U.D.C.	3	3	0
Loughborough Corporation	3	3	0
Lowestoft Corporation	3	3	0
Mansfield Corporation	3	3	0
Mansfield Woodhouse U.D.C. (1950)	2	2	0
(1951)	2	2	0
Market Harborough U.D.C.	2	2	0
McHugh, F. G.		10	6
Micklethwait, R. G.		10	0
Moorhouse, Mrs. M.		5	0
Newark Corporation	2	2	0
Nottingham Corporation	25	0	0
Peterborough Corporation	4	4	0
Ripley U.D.C.	2	2	0
Rushden U.D.C.	2	2	0
Southwell R.D.C.	3	3	0
Staveley U.D.C.	2	2	0
Swadlincote District U.D.C.	2	2	0
*Turner, T. Henry		10	6
Webb, R. N.	1	1	0
West Bridgford U.D.C.	2	2	0
Wigston U.D.C.	2	2	0
Woodcock, F. Huntley	1	0	0
Worksop Corporation	3	3	0

South West Division

Abercarn U.D.C.	2	2	0
Abertillery U.D.C.	3	3	0
Bath Corporation	4	4	0
Bathavon R.D.C.	2	2	0
Bedwas & Machen U.D.C.	2	2	0
Bristol Corporation	15	15	0
Bristol and District Regional Smoke Abatement Council	2	2	0
British Electricity Authority—			
South Wales Division	10	10	0
South Western Division	10	10	0
Buzzacott, J. O.	2	2	0
Campbell, Dr. A. F.	1	1	0
Cardiff Corporation	10	10	0
Cardiff R.D.C.	3	3	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	4	4	0
Coulthurst, Mrs. A.		10	6
Crook, S. C.	1	1	0
Cwmbran U.D.C.	2	2	0
Ebbw Vale U.D.C.	3	3	0
FitzGerald, Miss M.		10	6
Fry, Miss A.		10	6
Gellygaer U.D.C.	3	3	0
Gloucester Corporation	4	4	0
Kingswood U.D.C.	2	2	0
Llantrisant & Llantwit Fardre R.D.C.	3	3	0
Merthyr Tydfil Corporation	4	4	0
Morgan, D. & Sons	1	1	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	3	3	0
Neath R.D.C.	3	3	0
Newport Corporation	5	5	0
Pontypridd U.D.C.	3	3	0
Poole Corporation	2	2	0
Portishead U.D.C.	2	2	0
*Rogers, P.	2	2	0
Seale, Mrs. I. L.		10	6
Shaftesbury, Lady		10	0
Shawyer, A. F.		10	6
Silburn, Mrs. E.		10	6
South Wales Electricity Board	10	10	0
South Western Gas Board	36	15	0
Swansea Corporation	2	2	0
Swindon Corporation	4	4	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Wales Gas Board	21	0	0
Warmley R.D.C.	2	2	0
Women's Gas Council		10	0

South East Division

Acton Corporation	4	4	0
Acworth, A. W.		10	6
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Adam, W. Wakefield (1950)	1	1	0
(1951)		5	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0

	£	s.	d.
Ascot Gas Water Heaters Ltd.	10	10	0
Atkinson, Mrs. M.	1	0	0
Averill, C. R. Ltd.	1	1	0
Bakelite Ltd.	2	2	0
Banbury Corporation	2	2	0
Barber, S. S.		10	6
Barking Corporation	5	5	0
Barnes Corporation	3	3	0
Bastian & Allen Ltd.	2	2	0
Battersea Corporation	10	10	0
Beard, J. R.	1	1	0
Bedfordshire County Council	15	15	0
Bennett, M. J.	1	0	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A.	1	0	0
Bexley Corporation	5	5	0
Binderman, Mrs. A.		5	0
Bligh, Mrs. M. F.		10	0
Bond, Miss E. F.		10	6
Bournemouth Corporation	2	2	0
Braidwood, G. L.		10	6
Brighton Corporation	10	10	0
British Electrical and Allied Manufacturers' Association	10	10	0
British Electrical Development Association	100	0	0
British Electricity Authority	206	0	0
do. Eastern Division	10	10	0
do. London Division	10	10	0
do. South Eastern Division	10	10	0
do. Southern Division	10	10	0
British Iron and Steel Federation	105	0	0
British Medical Association	10	10	0
Browne, Dr. D. Warren	1	1	0
Buist, Commander C.		10	6
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	2	2	0
Charrington, Gardner, Lockett & Co. Ltd.	5	5	0
Chatham Corporation	3	3	0
Chelsea Corporation	3	3	0
Chingford Corporation	3	3	0
Chislehurst & Sidcup U.D.C.	4	4	0
Clarke, D. K.		10	6
Clinch, H. G.	1	1	0
Coal Utilisation Council	10	10	0
Coalite & Chemical Products Ltd.	15	15	0
Crayford U.D.C.	2	2	0
Dagenham Corporation	2	2	0
Dartford Corporation	3	3	0
Dartford R.D.C.	3	3	0
Darwen, J.	1	1	0
Ealing Corporation	2	2	0
Eastern Gas Board	42	0	0
East Ham Corporation	10	10	0
Eastleigh Corporation	3	3	0
East Sussex County Council	5	5	0
Edmonton Corporation	5	5	0
Edwards, Mrs. E. E.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. Gordon	1	11	6
Enfield U.D.C.	1	1	0
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Fareham U.D.C.	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C.	3	3	0
Finchley Corporation	4	4	0
Finsbury Corporation	4	4	0
*Foss, Mrs. A.		10	6
Franklin, C. Ltd.	2	2	0
Fry, Miss M.	1	0	0
Fulham Corporation	10	10	0
Gamlen, R. E.	1	1	0
*Gandy, Miss R. L.	1	1	0
Gas Council	250	0	0
General Electric Co. Ltd.	10	10	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Gosport Corporation	1	1	0
Grace, Mrs. E.		10	6
Gravesend Corporation	3	3	0
Greenwich Corporation	2	2	0
Greenwood, T. A. S.		10	0
Guildford Corporation	3	3	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hall, C. A.		15	0
Hammersmith Corporation	10	10	0
*Hampson, G. B.		10	6
Harrold Leather Mfg. Co. Ltd.	1	1	0
Harrow U.D.C.	10	10	0
Harwich Protection Association	1	1	0
Hayes & Harlington U.D.C.	4	4	0
Heston & Isleworth Corporation	5	5	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	1	1	0
Hornchurch U.D.C.	3	3	0
Hurseal Ltd.	5	5	0
*Hutton, Dr. K. B.		10	6
Hyland, A.		10	6
Ideal Boilers & Radiators Ltd.	5	5	0
Institute of Fuel	10	10	0
Institution of Electrical Engineers	10	10	0
Institution of Heating and Ventilating Engineers	10	10	0
Jones, Griffith		10	6
Kensington Corporation	1	1	0
Kent County Council	5	5	0
Kingston-upon-Thames Corporation	3	3	0
Lambeth Corporation	1	1	0
Lee, S. A.	1	0	0
*Lessing, Dr. R.	1	1	0
Leveson Gower, Miss V.		5	0
Leyton Corporation	2	2	0
Liptak Furnace Arches	2	2	0
Lister, B. S.	1	0	0
London (City), Corporation of	26	5	0
London Electricity Board	10	10	0
Low Temperature Coal Distillers' Association	5	5	0
Luscombe, B. L.		10	6
Luton Corporation	2	2	0
*McGhie, A. T. S.		10	6
*McLachlan, T.		10	6
Maidenhead Corporation	3	3	0
Malden & Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Mathias, Mrs. F. V. L.		10	6
Mathias, J.	1	1	0
Matthews, Mrs. M.		10	6
Melland, B. (1950)	5	0	0
(1951)	1	1	0
Merton & Morden U.D.C.	4	4	0
Mitcham Corporation	2	2	0
Morgan, Miss G.		10	6
*Munro, Mrs. M. A.		10	6
Musgrave & Co. Ltd.	10	10	0
National Coal Board	157	10	0
Neilan, J. C.	1	1	0
Nonhebel, G.	1	1	0
North Thames Gas Board	105	0	0
Oxford Corporation	10	10	0
Oxford Preservation Trust	1	1	0
Paddington Corporation	5	5	0
Parkinson, B. R.		7	6
Parmenter, Mrs. D. M.		10	6
Pollard, R. S. W.		10	6
Pollitzer, E.	2	2	0
Portsmouth Corporation	2	2	0
Radiovisor Parent Ltd.	5	5	0
Railway Executive	150	0	0
Rathbone, P. R.		10	6
Rayner, E. T.	2	0	0
Reading Corporation	2	2	0
Reigate Corporation	1	1	0
Rheostatic Co. Ltd.	1	1	0
Rhondda, Lady		10	6
Richards, Dr. H.		10	6
Richmond Corporation	3	3	0

	£	s.	d.
Roberts, J. M.		10	6
*Robinson, Mrs. E.	2	2	0
Rochester Corporation	3	3	0
*Roper, Captain R.		10	6
Ryan, J.		10	0
St. Albans Corporation (1950)	3	3	0
(1951)	3	3	0
St. Marylebone Corporation	5	5	0
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0
*Sanger, Mrs. A. D.	1	0	0
Sanitary Inspectors' Association	10	10	0
Sempill, Lord	2	2	0
Sewards-Shaw, Capt. K. E.		10	6
Shipp, W. H.		10	6
Shoreditch Corporation (1950)	3	3	0
(1951)	3	3	0
Simon, Professor F. E.		10	6
Slough Corporation	3	3	0
Smith, Sir Ernest	2	2	0
*Smith, D. V. H.	2	2	0
Smith & Wellstood Ltd.	1	1	0
Solid Smokeless Fuels Federation	10	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
South Eastern Electricity Board	10	10	0
South Eastern Gas Board	78	15	0
Southend-on-Sea Corporation	2	2	0
Southern Electricity Board	10	10	0
Southern Gas Board	36	15	0
Southwark Corporation	5	5	0
Southwell, W. E.		10	6
Southwick U.D.C.	2	2	0
Stepney Corporation	4	4	0
Stoke Newington Corporation	3	3	0
Sturtevant Engineering Co. Ltd.	2	2	0
Sutton & Cheam Corporation	5	5	0
Swift, S.	1	1	0
Thackeray, Mrs. L. E.		5	0
Thurrock U.D.C.	4	4	0
Tiranti, A.		5	0
Tottenham Corporation	10	10	0
Trier, F. Newton	1	1	0
Uxbridge U.D.C. (1950)	3	3	0
(1951)	3	3	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
Wadham, Miss D.	1	0	0
Walker, Miss H. A.		10	0
Walthamstow Corporation	10	10	0
Wanstead & Woodford Corporation	4	4	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	4	4	0
*Watkins, D. V.		10	6
Wembley Corporation	10	10	0
West Ham Corporation	1	1	0
Westminster City Council	15	15	0
White, Dr. H. D. J.		10	6
Wicksteed, J. H.		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0
Windsor R.D.C.	2	2	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	5	5	0
Women's Gas Federation	10	10	0
Woodall-Duckham Vertical Retort Co. Ltd.	10	10	0
Wood Green Corporation	2	2	0

Overseas Subscriptions

Beaupré, B. (Canada)		10	6
Dyktor, H. G. (U.S.A.)	1	1	0
Griebling, R. T. (U.S.A.)	*Exchange membership*		
Hebley, H. F. (U.S.A.)	1	6	0
Hennessy, N. (U.S.A.)	1	1	0
Jaffray, F. A. (Southern Rhodesia)	2	0	0
Meddows, J. C. (New South Wales)	1	1	0
*Reif, A. E. (U,S,A,)	1	1	0
Vereeniging Town Council (S.A.)	1	1	0
Willam, Dr. A. (Belgium)	1	4	7
Wurts, T. C. (U.S.A.)	1	18	4
Subscriptions and donations under 5s.	1	11	0
Total	£4,608	7	11

General Section

THE LAW RELATING TO SMOKE, ETC.

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (Smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 36). Briefly, the expression "smoke" includes "soot, ash, grit and gritty particles." Provisions (s.101) that require a nuisance to be proved or enable a "best practicable means" defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that "interferes with or obstructs" the efficient working of mines or metallurgical processes.

Action may be taken with regards to smoke under common law procedure and can be to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase "black smoke" is not used.

The smoke abatement legislation is administered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

Recent Local Legislation

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of 'prior approval" of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this will be followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows; those also including smokeless zone clauses being marked "*S.Z.*":

Manchester Corporation Act, 1946 *S.Z.*
City of London (Various Powers) Act, 1946.
Preston Corporation Act, 1947.
Paisley Corporation Order Confirmation Act, 1947.
Dudley Corporation Act, 1947
Salford ,, 1948 *S.Z.*
Coventry ,, 1948 *S.Z.*
Darwen ,, 1948
Birmingham ,, 1948
St. Helens ,, 1948
Smethwick ,, 1948
Rochdale ,, 1948 *S.Z.*
Brighton ,, 1948
Bradford ,, 1949 *S.Z.*
Bolton ,, 1949 *S.Z.*
Urmston ,, 1949 *S.Z.*
Crewe ,, 1949 *S.Z.*
Slough ,, 1949
West Bromwich ,, 1949
Leyton ,, 1950
Manchester ,, 1950 (Amendment to 1946 Act).
Wolverhampton ,, 1950 *S.Z.*
Edinburgh Corporation Order Confirmation Act, 1950 *S.Z.*
Worcester Corporation Act, 1951
Sunderland ,, 1951 *S.Z.*
Sutton and Cheam ,, 1951
Notts County Council Act, 1951
Swindon Corporation Act, 1951 *S.Z.* only.

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made in 1928, 1935, 1939 and 1950. The Orders, however, do not apply to Scotland. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an Inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the Inspectorate. (*See also Directory*).

THE MINISTRY OF FUEL AND POWER

The main function of the Fuel Efficiency Branch of the Ministry of Fuel and Power is the promotion of efficiency in the use of fuel and power and since this is necessarily closely associated with smoke abatement the Ministry takes an active and practical part in this work.

The technical services of the Branch are carried out by a staff of experienced fuel engineers and fuel engineering assistants in each Region who, among other duties, are available to assist in dealing with problems of excessive smoke and grit emission.

The Ministry also encourages the provision of City and Guilds courses in Boilerhouse Practice (preliminary, intermediate and final grade), Combustion Engineering, and other subjects conducive to fuel efficiency and thus to smoke abatement.

Inquiries should be addressed to the appropriate Regional Fuel Engineer at the address given in the Directory.

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes three main lines of attack :

(i) a study of the properties and behaviour of atmospheric pollution including the systematic measurement of the amounts of pollution present in the air in various areas throughout the country.

(ii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iii) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December, 1951, regular observations of atmospheric pollution were being made by some 130 bodies, involving the use of approximately 1,020 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. One such process, in which the oxides of sulphur are recovered as a saleable by-product, is undergoing investigation in a pilot-scale plant at the Fuel Research Station.

Local authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1950 some 100 bodies had appointed representatives to serve on this Conference.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to ten per cent. of the fuel, has been developed and is now being manufactured commercially. In the same field, research is now being directed towards the development of smoke eliminators for vertical boilers and hand-fired, forced-draught boilers of the Lancashire type.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the "Approved List," which is circulated for the guidance of local authorities. The information is also incorporated in the Coal Utilization Council's list of recommended domestic fuel appliances, which is available to the general public.

DOMESTIC FUEL POLICY

The Simon Report

In March, 1946, the Fuel and Power Advisory Council, the Chairman of which was Lord Simon of Wythenshawe, presented a report on "Domestic Fuel Policy" to the Minister of Fuel and Power. This was, and is, an important document for the smoke abatement movement, as the policy recommended was largely identical with that needed for the abolition of household smoke.

The Committee came to the conclusion that "our coal is used for domestic heating with a degree of inefficiency which is not, so far as we can ascertain, even approached in any other country in the world." For reference some of the Committee's recommendations relating particularly to smoke prevention, are

quoted (the reference after each paragraph being to the section of the "Summary of Objectives and Recommendations," as given on pages 32-35 of the Report) :

"*National Fuel Economy*—To ensure that all fuels shall be used in the most efficient and economical manner with due regard to the need for conserving the national reserves of coal. (1c)

"*Smoke abatement*—To abolish the pollution of the atmosphere from domestic sources by soot and tar, and to reduce to the lowest practicable limit the emission of sulphurous gases. (1d)

"The Government should encourage the production of improved heating appliances for all fuels and for all domestic purposes. It is particularly important to develop multi-fuel appliances to burn efficiently and as smokelessly as possible both bituminous coal and smokeless solid fuels. (2a)

"Minimum standards should be established as soon as possible for all leading types of appliances. (2b)

"The manufacture and sale of new appliances falling below approved standards should be prohibited as soon as possible. (2c)

"The Government should take steps to secure the mass production of standardized domestic fuel appliances. (2g)

"In subsidized houses the Government should make the use of approved solid fuel appliances a condition of subsidy, and should consider the advisability of a free issue of such appliances as part of the subsidy. (2h)

"Old fashioned coal grates in existing houses should be replaced wherever possible by new approved appliances. Subsidies should be granted by the Government to encourage widespread and rapid action on these lines. (2j)

"Central heating plants should be accepted as the main means of heating blocks of flats or single large houses. (3a)

"The Government should endeavour to ensure that the available supplies of smokeless solid fuel should be burnt in individual houses, and that suitable types of central heating and district heating plants should burn bituminous coal. (3b)

"It should be the policy of the Government to replace bituminous coal in all single house appliances by smokeless solid fuel as rapidly as adequate supplies can be provided at a reasonable price. (4d)

"The Government should encourage the largest practicable increase in the production of smokeless solid fuels suitable for domestic purposes. (5a)

"The necessary legislation should be passed to enable smokeless zones to be established, and a few such zones should be declared, mainly for experimental purposes. (10)

"It should be the target of a national domestic fuel policy to secure that the 50 million tons of bituminous coal now burnt with a working efficiency of 20 per cent. should be replaced in 20 years by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40 per cent. . . . ." (11)

Of these recommendations progress has been made with respect to 2a, 2b, 2g, 2h and 10.

Attention may be drawn to action taken by the Ministry of Health with respect to 2h. Circular 170/48, to Housing Authorities, dated 11th November, 1948, stated :

"Having regard to the continued importance of economy in fuel and the permanent need of cheaper and more efficient domestic heating, the Minister must in these circumstances ask all housing authorities to review present practice and in all future housing schemes to specify only the types of solid fuel heater contained in the lists of approved appliances circulated from time to time."

DIRECTORY OF ORGANIZATIONS

Concerned with Air Pollution and Related Subjects

ALKALI INSPECTORATE :

Chief Inspector, Ministry of Housing and Local Government, Whitehall, S.W.1.
Deputy Chief Inspector, do.
District Inspectors, District I, 76 Elton Road, Darlington.
District II, 38 College Road North, Liverpool, 23.
District III, 30 Montgomery Road, Sheffield, 7.
District IV, 40 Kingsdown Rd., Senneleys Park, Birmingham, 31.
District V, 41 Henleaze Avenue, Westbury-on-Trym, Bristol.
District VI, 137 Stanwell Road, Ashford, Middlesex.
Chief Inspector for Scotland—Department of Health for Scotland, 7 Rothesay Terrace, Edinburgh, 3.

AMENITIES COUNCIL, NATIONAL, 34 Great Ormond Street, London, W.C.1.
AMERICA, AIR POLLUTION AND SMOKE PREVENTION ASSOCIATION OF, 4400 Fifth Avenue, Pittsburgh, 13, Pa.
AMERICA : OFFICE OF AIR AND STREAM POLLUTION, BUREAU OF MINES, U.S. Department of the Interior, Washington, 25, D.C.
ARCHITECTS, ROYAL INSTITUTE OF BRITISH, 66 Portland Place, London, W.1.
ARCHITECTS AND SURVEYORS, INCORPORATED ASSOCIATION OF, 75 Eaton Place, London, S.W.1.
ARTS, ROYAL SOCIETY OF, 6 John Adam Street, London, W.C.2.

BRISTOL AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Public Health Department, 48 Queen Square, Bristol, 1.
BRITISH MEDICAL ASSOCIATION, B.M.A. House, Tavistock Square, London, W.C.1.
BRITISH STANDARDS INSTITUTION, 28 Victoria Street, London, S.W.1.
BUILDING CENTRE, 26 Store Street, London, W.C.1.
BUILDING RESEARCH STATION, Bucknall's Lane, Garston, nr. Watford, Herts.

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S.W.1.
CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1.
CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7.
CIVIC SOCIETIES, CENTRAL COUNCIL OF, 82 Pall Mall, London, S.W.1.
COAL BOARD, NATIONAL, Hobart House, Grosvenor Place, London, S.W.1.
COAL UTILIZATION COUNCIL, 3 Upper Belgrave Street, London, S.W.1.
COAL UTILIZATION RESEARCH ASSOCIATION, BRITISH, Randalls Road, Leatherhead, Surrey.
COKE OVENS MANAGERS' ASSOCIATION, 1 Cliff Street, Mexborough, Yorks.
COKE RESEARCH ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1.
COMBUSTION ENGINEERING ASSOCIATION, 6 Duke Street, St. James's London, S.W.1.
COUNTY BOROUGHS' ASSOCIATION, Town Hall, Oxford.
COUNTY COUNCILS' ASSOCIATION, 84 Eccleston Square, London, S.W.1.
COUNTY COUNCILS IN SCOTLAND, ASSOCIATION OF, 3 Forres Street, Edinburgh.

ELECTRICAL AND ALLIED INDUSTRIES RESEARCH ASSOCIATION, BRITISH, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. Laboratories, Wadsworth Road, Perivale, Middlesex.
ELECTRICITY AUTHORITY, BRITISH, British Electricity House, Great Portland Street, London, W.1.
ELECTRICAL DEVELOPMENT ASSOCIATION, BRITISH, 2 Savoy Hill, London, W.C.2.
ELECTRICAL ENGINEERS, INSTITUTION OF, Savoy Place, Victoria Embankment, London, W.C.2.

FUEL, INSTITUTE OF, 18 Devonshire Street, London, W.1.

FUEL AND POWER, MINISTRY OF, 7 Millbank, London, S.W.1.
Chief Scientists' Division
Fuel Efficiency Branch : Queen Anne's Chambers, Dean Farrar Street, London, S.W.1.
Regional Offices :

Scotland	24/6 Douglas Crescent, Edinburgh, 12.
Northern	Government Buildings, Kenton Bar, Newcastle upon Tyne.
North Western	Burton Road, West Didsbury, Manchester.
North Eastern	Century House, South Parade, Leeds.
North Midland	7 Government Buildings, Chalfont Drive, Nottingham.
Midland	63 Hagley Road West, Birmingham, 17.
Wales	27 Newport Road, Cardiff.
South Western	Flowers Hill, Brislington, Bristol, 4.
Southern	" Whiteknights," Earley, Reading.
Eastern	Brooklands Avenue, Cambridge.
London	Mill House, 87/9 Shaftesbury Avenue, London, W.1.
South Eastern	Government Buildings, Forest Road, Hawkenbury, Tunbridge Wells, Kent.

FUEL RESEARCH STATION, River Way, Greenwich, London, S.E.10.
(Scottish Branch : Thorntonhall, nr. Glasgow).

GAS COUNCIL, Gas Industry House, 1 Grosvenor Place, London, S.W.1.
GAS ENGINEERS, INSTITUTION OF, 17 Grosvenor Crescent, London, S.W.1.
GAS INDUSTRIES, SOCIETY OF BRITISH, 56 Victoria Street, London, S.W.1.
GEORGIAN GROUP, 27 Grosvenor Place, London, S.W.1.

HEALTH EDUCATION, CENTRAL COUNCIL FOR, Tavistock House, Tavistock Square, London, W.C.1.
HEATING AND VENTILATING ENGINEERS, INSTITUTION OF, 75 Eaton Place, London, S.W.1.
HOUSING AND LOCAL GOVERNMENT, MINISTRY OF, Whitehall, London, S.W.1.
(see also Alkali Inspectorate)
HOUSING AND TOWN PLANNING COUNCIL, NATIONAL, 42 Devonshire Street, London, W.1.
HOUSING CENTRE, 13 Suffolk Street, London, S.W.1.
HOUSING INCORPORATED, INSTITUTE OF, 359 Strand, London, W.C.2.

IRON AND STEEL FEDERATION, BRITISH, Steel House, Tothill Street, London, S.W.1.
IRON AND STEEL RESEARCH ASSOCIATION, BRITISH, 11 Park Lane, London, W.1.
IRON FOUNDERS' ASSOCIATION, BRITISH, 30 St. James's Square, London, S.W.1.

LONDON AND HOME COUNTIES SMOKE ABATEMENT ADVISORY COUNCIL, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1.
LOW TEMPERATURE COAL DISTILLERS' ASSOCIATION OF GREAT BRITAIN LTD., 82 Victoria Street, London, S.W.1.

MANCHESTER AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Town Hall, Manchester, 2.
MECHANICAL ENGINEERS, INSTITUTION OF, Storey's Gate, London, S.W.1.
MEDICAL OFFICERS OF HEALTH, SOCIETY OF, Tavistock House South, Tavistock Square, London, W.C.1.
METEOROLOGICAL SOCIETY, ROYAL, 49 Cromwell Road, London, S.W.7.
METROPOLITAN BOROUGHS' STANDING JOINT COMMITTEE, Westminster City Hall, London, W.C.2.
MIDLANDS JOINT ADVISORY COUNCIL FOR THE ABATEMENT OF SMOKE AND ATMOSPHERIC POLLUTION, Public Health Department, Council House, Birmingham, 3.
MUNICIPAL AND COUNTY ENGINEERS. INSTITUTION OF, 84 Eccleston Square, London, S.W.1.
MUNICIPAL CORPORATIONS, ASSOCIATION OF, Palace Chambers, Bridge Street, London, S.W.1.

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY, 42 Queen Anne's Gate, London, S.W.1.

Parliamentary and Scientific Committee, 31 Palace Street, London, S.W.1.
Public Health and Hygiene, Royal Institute of, 28 Portland Place, London, W.1.
Preservation of Rural England, Council for the, 4 Hobart Place, London, S.W.1.
Protection of Ancient Buildings, Society for the, 55 Great Ormond Street, London, W.C.1.

Royal Burghs of Scotland, Convention of the, 51 Castle Street, Edinburgh.
Royal Institution of Great Britain, 21 Albemarle Street, London, W.1.
Rural District Councils' Association, 191/7 St. Stephen's House, London, S.W.1.

Sanitary Association of Scotland, Royal, 185 St. Vincent Street, Glasgow.
Sanitary Engineers, Institution of, 118 Victoria Street, London, S.W.1.
Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1.
Sanitary Institute, Royal, 90 Buckingham Palace Road, London, S.W.1.
Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1 ; *see also* Building Research Station, Fuel Research Station.
Scottish Counties of Cities Association, City Chambers, Edinburgh.
Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield.
Smoke Abatement Society, National
Central Offices, Chandos House, Buckingham Gate, London, S.W.1.
East Midlands Division, Sanitary Inspectors' Office, 50 Shakespeare St., Nottingham.
North East Division, Sanitary Department, Town Hall, Ashington.
North West Division, Health Department, Town Hall, Manchester, 2.
Scottish Division, City Chambers, Glasgow.
West Midlands Division, Public Health Department, 67 Broad Street, Birmingham, 3.
Yorkshire Division, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1.
Social Service, National Council of, 26 Bedford Square, London, W.C.1.
Solid Smokeless Fuels Federation, 1 Grosvenor Place, London, S.W.1.
Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1.
Stationery Office, Her Majesty's, 421 Oxford Street, London, W.1.

Town and Country Planning Association, 28 King Street, London, W.C.2.
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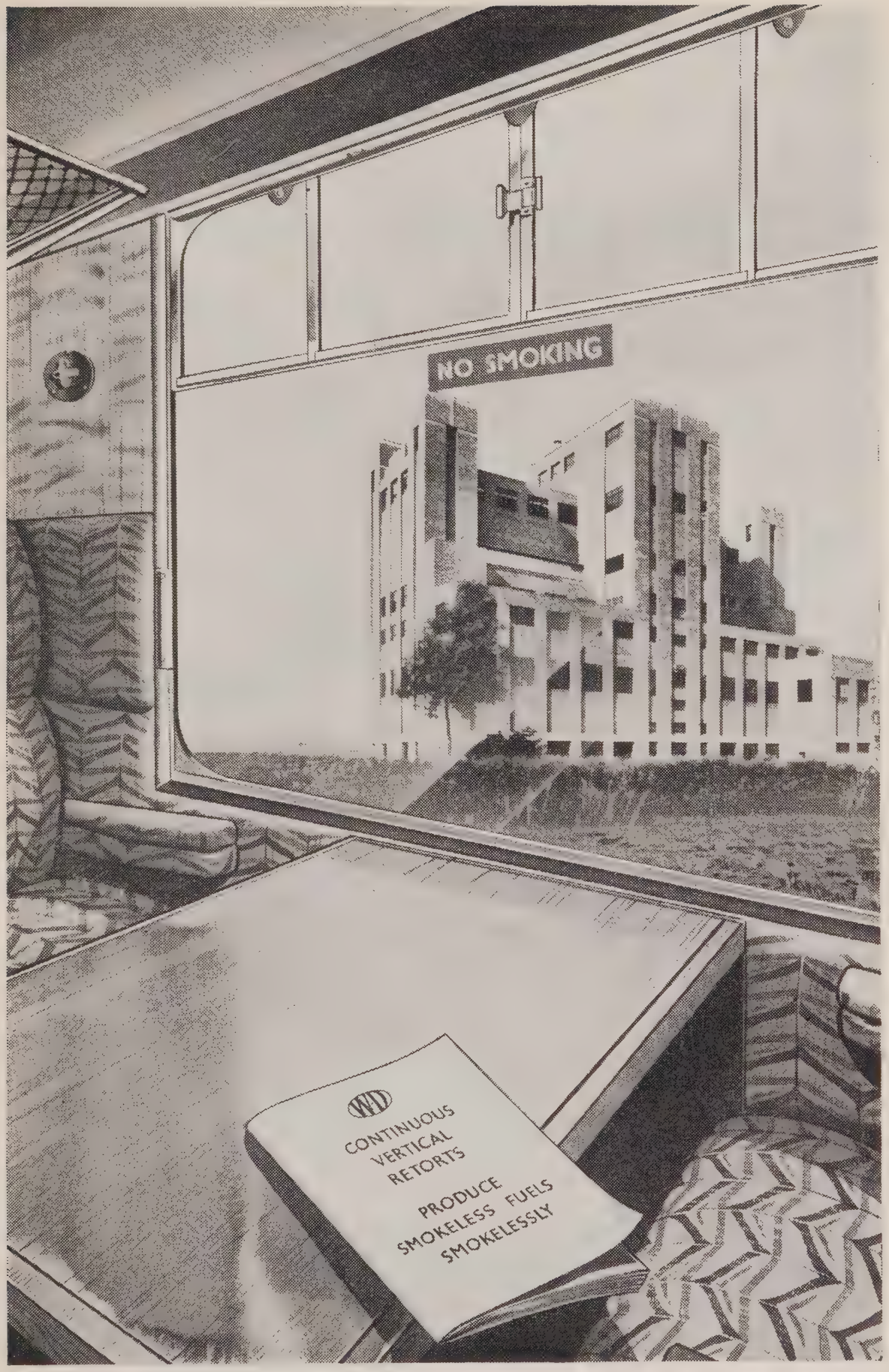
Urban District Councils' Association, 28 Victoria Street, London, S.W.1.

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6.
West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1.
Women, Electrical Association for, 35 Grosvenor Place, London, S.W.1.
Women of Great Britain, National Council of, 36 Lower Sloane Street, London, S.W.1.
Women's Advisory Council on Solid Fuel, 18 South Molton Street, London, W.1.
Women's Gas Federation, 1 Grosvenor Place, London, S.W.1.

RECENT PAPERS AND REPORTS

A Selected List

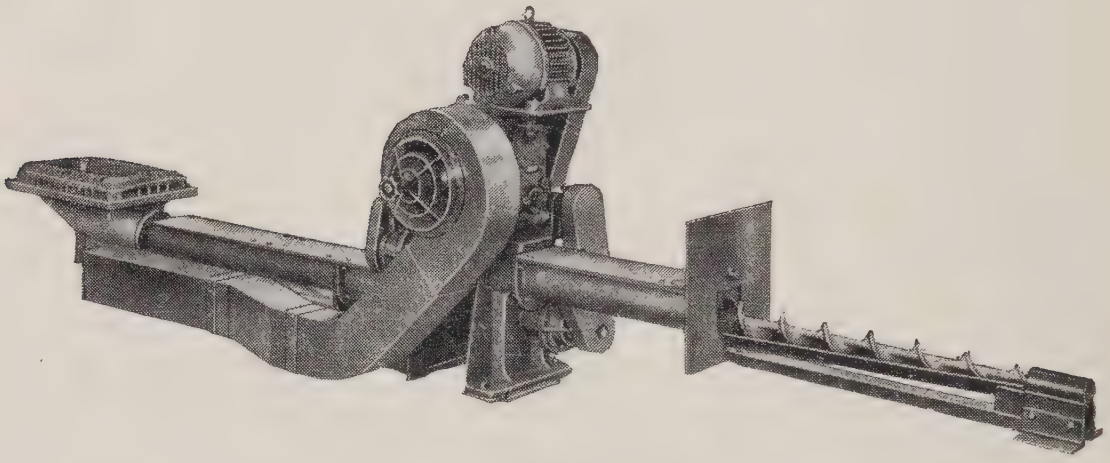
Alkali, etc., Works. 87th Annual Report. H.M.S.O., 1951.
District Heating Working Party : Interim Report. H.M.S.O., 1951.
Education, Smoke Abatement and Fuel Efficiency. S. N. Duguid. *Smokeless Air*, Autumn 1951, **22**, 24-26.
Measurement and Survey of Atmospheric Pollution. S. H. Richards. *J. Roy. San. Inst.* 1951, **71**, 216.


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MINISTRY OF HEALTH CIRCULAR ON SOLID FUEL APPLIANCES IN PRIVATELY BUILT HOUSES. (No. 7/51, 22nd January, 1951). *Smokeless Air*, Summer 1951, **21,** 139.

PARLIAMENT DISCUSSES THE SMOKE PROBLEM. House of Commons, 27th February, 1951. *Smokeless Air*, Summer 1951, **21,** 144-151.

PIMLICO DISTRICT HEATING SCHEME, WESTMINSTER : AN IMPORTANT HYGIENIC DEVELOPMENT. A. E. Margolis. *J. Roy. San. Inst.*, November 1951, **71,** 671-682.

POLICIES FOR THE PREVENTION OF INDUSTRIAL AIR POLLUTION. Collieries : N. Higginson ; Gas : J. W. Denton ; Electricity : Dr. H. E. Crossley ; Iron and Steel : Neil H. Turner ; Cement : E. Burke. *N.S.A.S. Proc. Blackpool Conf.* 1951, 44-64.

POWER AND WASTE IN THEIR SOCIAL SETTING. Dr. J. Bronowski. Second Des Voeux Memorial Lecture. *Smokeless Air*, Winter 1951, **22,** 58-64. *N.S.A.S. Proc. Blackpool Conf.*, 1951, 8-13.

PROBLEM OF REDUCTION OF ATMOSPHERIC POLLUTION. Part I. Pollution by Sulphur Compounds : Dr. S. R. Craxford. Part 2. Elimination of Smoke : W. J. Sparkes. *J. Roy. San. Inst.* 1951, **71,** 209-212.

PRIOR APPROVAL. D. C. Norcliffe. San. Insp. Assn. Mtg., Coventry, Nov., 1951.

RAILWAYS WITHOUT SMOKE. *Smokeless Air*, Summer 1951, **21,** 152-154.

RECOVERY OF SULPHUR FROM FLUE GAS BY THE USE OF AMMONIA. Dr. S. R. Craxford, A. Poll and Dr. W. J. S. Walker. *J. Inst. Fuel*, January 1952, **25,** 13-14.

RESPONSIBILITIES AND OPPORTUNITIES OF LOCAL AUTHORITIES IN INDUSTRIAL SMOKE ABATEMENT. Thomas A. Ashford. *Smokeless Air*, Autumn 1951, **22,** 28-31.

SMOKE ABATEMENT AND A NATIONAL FUEL POLICY. Arnold Marsh. *Smokeless Air*, Summer 1951, **21,** 155-159.

SMOKE, DUST AND EFFICIENCY. J. Fallon. *Smokeless Air*, Autumn 1951, **22,** 19-22.

SMOKE PREVENTION IN THE HOME—THE WOMAN'S VIEWPOINT. Solid Fuel : Mrs. E. Fraser-Stephen ; Gas : Miss M. A. Lovell Burgess ; Electricity : Dame Caroline Haslett. *N.S.A.S. Proc. Blackpool Conf.*, 1951, 74-80.

SMOKELESS FUELS REVIEW

No. 1. Low Temperature Carbonization—The Coalite Process. *Smokeless Air*, Winter 1950, **21,** 74-78.

No. 2. Gas Coke : J. O. Cooke and A. C. Hutt. *Smokeless Air*, Spring 1951, **21,** 116-122.

No. 3. The Rexco Process. *Smokeless Air*, Summer 1951, **21,** 162-164.

No. 4. The Natural Smokeless Fuels of South Wales. *Smokeless Air*, Autumn 1951, **22,** 35-39.

No. 5. Hard Coke : J. P. Graham. *Smokeless Air*, Winter 1951, **22,** 81-86.

SMOKELESS OPERATION OF SMALL STEAM RAISING PLANT. Hand-fired Boilers : V. R. Chadwick ; Chain Grate Stokers : C. H. G. Hayward ; Coking and Sprinkler Stokers : H. E. Pearsall ; Underfeed Stokers : Colin C. Day ; Smoke Indicating Devices : G. A. G. Ive. *N.S.A.S. Proc. Blackpool Conf.*, 1951, 14-33.

SMOKELESS ZONES WITH SPECIAL REFERENCE TO COVENTRY. T. E. Wilmot. San. Insp. Assn. Mtg. Coventry, Nov. 1951.

STANDARD FOR DEPOSIT GAUGES FOR ATMOSPHERIC POLLUTION. B.S. 1747 : 1951.

SURVEY OF THE PROBLEM OF SMOKE ABATEMENT IN LOW TEMPERATURE FURNACES. Dr. R. J. Sargant. *J. Roy. San. Inst.* November 1951, **71,** 716-728.

U.S.A. Conference and Other Reports Received

Air Pollution and Smoke Prevention Association of America. 44th Annual Meeting, Roanoke, Virginia. May 1951.

Allegheny County, Bureau of Smoke Control. Second Annual Report of Activities. June, 1951.

County of Los Angeles, Air Pollution Control District. Technical and Administrative Report on Air Pollution Control. 1949/1950.

Methods of Reducing Dust Emission from a Spreader-Stoker-Fired Boiler Furnace. W. C. Holton and R. B. Engdahl. June, 1951. *Am. Soc. Chem. Engrs.*, Paper No. 51-SA-20.

City of Pittsburgh, Department of Public Health. Reports on Stationary Stacks and Railroad Smoke Condition. 1950.

Guide to Publications

This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications, which may be obtained either direct from the Society or other bookseller.

Prices in brackets include postage and packing, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. It a number of items are ordered together excess postage will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

CODE NO.

I THE LAW

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevant sections in full of the principal Acts. New edition, 1948.
Cloth, 5s. (5s. 3d.) ; paper covers, 3s. (3s. 2d.)

51. **Model Byelaws, Smoke Abatement.** For Local Authorities proposing to make byelaws under Section 104 of the Public Health Act 1936. (H.M.S.O., 1937). 1d. (3d.)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans for post-war reconstruction. 1s. (1s. 2d.)

3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 2d.)

4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)

5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 8d.)

6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)

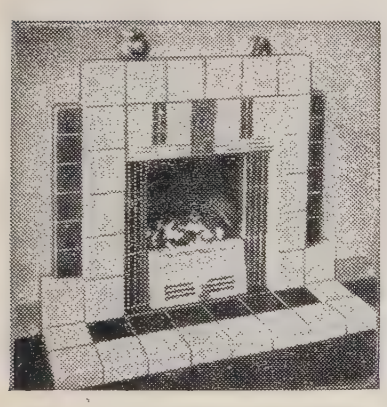
7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (8d.)

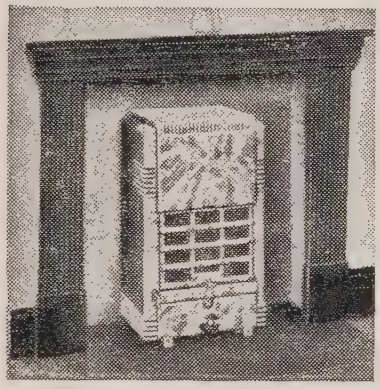
8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 2d.)

9. **Smoke Abolition and the Public : Problems of Education and Propaganda.** Leslie Hardern. Reprinted from 1948 Conference report. 6d. (8d.)

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42. **Margate Conference, 1950.** The Des Voeux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as Applied to New Housing and Railway Smoke. 6s. (6s. 3d.)

47. **Blackpool Conference, 1951.** The Des Voeux Memorial Lecture—" Power and Waste in their Social Setting," and papers on the Smokeless Operation of Small Steam Raising Plant, Policies for the Prevention of Industrial Air Pollution and Smoke Prevention in the Home—the Woman's Viewpoint. 7s. 6d. (7s. 8d.)

(*See also VIII*, 29, 30, 32, 38, 45, 48)

III GENERAL

11. **Smoke : The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 7d.)

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(*See also I*, 1, 51 ; *II*, 2, 4, 5, 6, 35, 42 ; *III*, 11)

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18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 1s. (1s. 2d.)

36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural-Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station (H.M.S.O., 1949). 1s. (1s. 2d.)

(*See also II*, 3, 4, 5, 6, 35, 42, 47 ; *III*, 11 ; *V*, 16)

VII DOMESTIC HEATING

20. **Heating and Ventilation of Dwellings.** The Building Research Board's comprehensive survey, with much material of smoke prevention interest. (H.M.S.O., 1945). 2s. 6d. (2s. 9d.)

21. **Domestic Fuel Policy.** Report of the Minister of Fuel and Power's Advisory Council (the Simon Report). Its recommendations relating to smoke prevention are of exceptional importance. (H.M.S.O., 1946). 1s. (1s. 2d.)

22. **Solid Fuel Installations.** A complete technical survey of domestic heating needs and practice, including a section on smoke abatement. (H.M.S.O., 1944). 9d. (11d.)

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37. **District Heating in American Housing.** National Building Studies, Special Report No. 7 by the Ministry of Fuel and Power. The report of a mission to the U.S.A. in 1947. Fully illustrated and containing statistical tables. (H.M.S.O., 1949). 4s. 6d. (4s. 9d.)

44. **Housing Manual, 1949.** The official recommendations on housing practice. The section on the heat installation may be regarded as the basis of present-day smoke prevention policy. (H.M.S.O., 1949). 3s. 6d. (3s. 10d.)

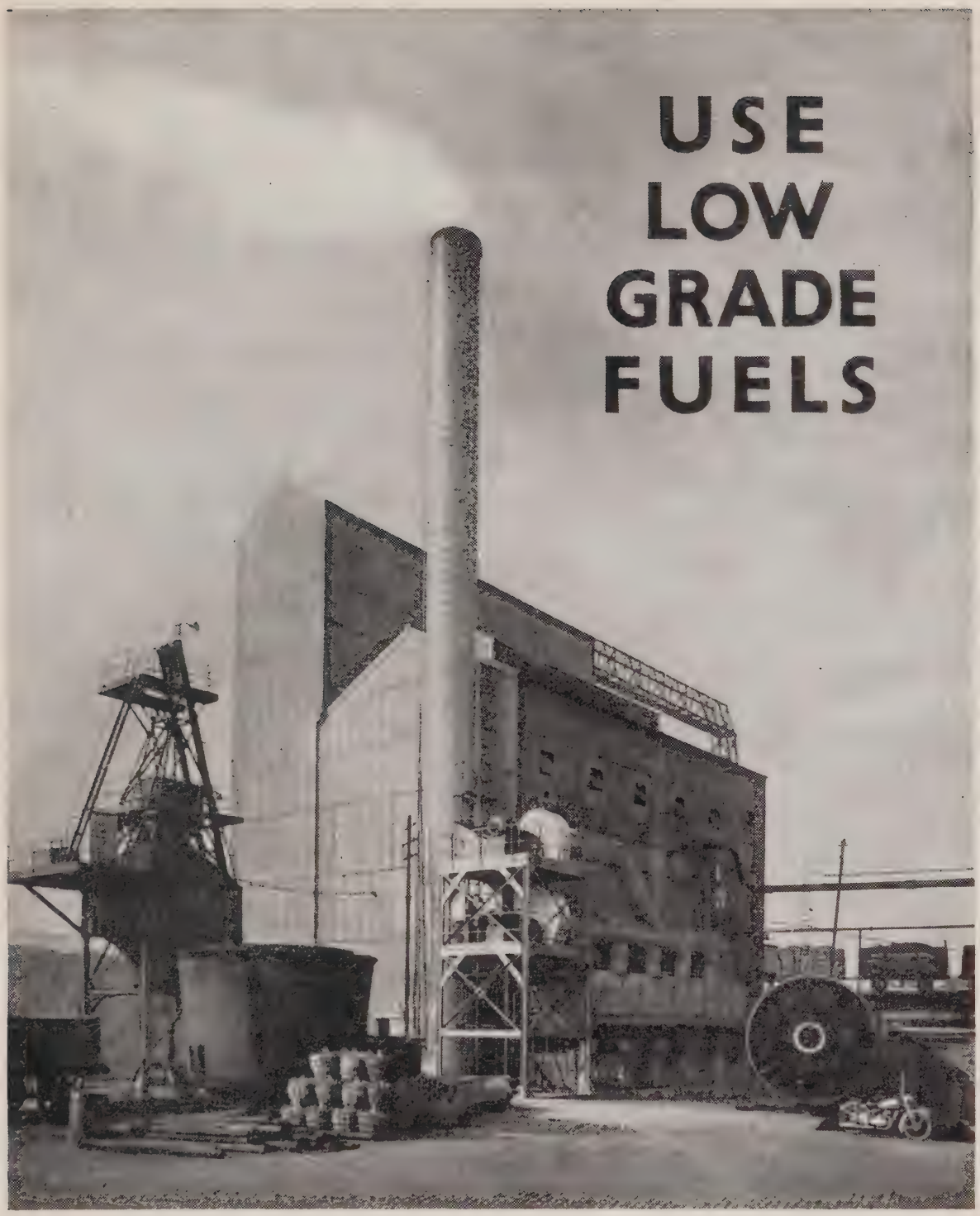
(*See also II*, 2, 3, 4, 5, 6, 35, 42, 47 ; *III*, 11)

VIII TECHNICAL AND SCIENTIFIC STUDIES

25. **Reduction of Smoke from Merchant Ships.** Fuel Research Technical Paper No. 54. A full report of voyage trials of the Fuel Research Station's smoke eliminator. (H.M.S.O., 1947). 1s. 3d. (1s. 5d.)

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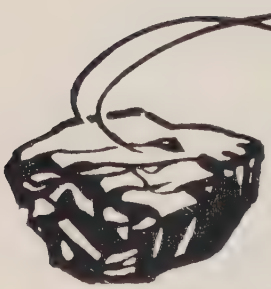


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(*See also II*, 3, 8 ; *VI*, 36)

IX FOR TEACHERS

33. **The Smoke Problem and Science Teaching.** Experiments and material for introducing smoke abatement instruction into general science lessons. 3d. (5d.)

(*See also III*, *12*)

X OTHER INDUSTRIAL POLLUTION

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(*See also II*, 35, 47)

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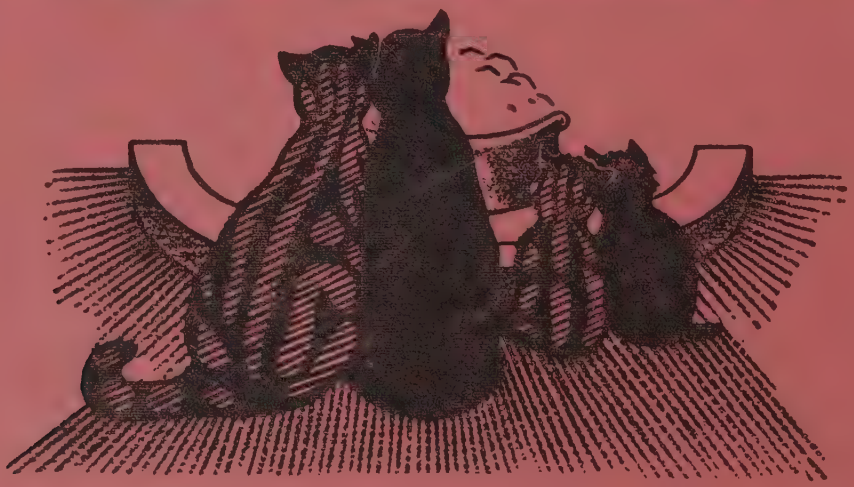
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NATIONAL SMOKE ABATEMENT SOCIETY

YEAR BOOK

1953

CONTENTS

N.S.A.S. Section *Page*

Officers of the Society 2
Divisional Councils 2
Executive Council 3
Affiliated Local Authorities 4
23rd ANNUAL REPORT AND DIVISIONAL REPORTS 6
Information about the Society 13
Services to Members 14
The Covenant Subscription Scheme 15
Accounts for the year ended 30th June, 1952 16
Subscriptions List for the year ended 30th June, 1952 18

General Section

The Law Relating to Smoke, etc. 24
Recent Local Legislation 24
The Alkali, etc., Works Act 25
The Ministry of Fuel and Power 25
The Investigation of Atmospheric Pollution and other work of the Fuel Research Station 25
Domestic Fuel Policy—the Simon Report 26
National Fuel Policy—The Ridley Report 27
The London Smoke Fog, December, 1952 29
Directory of Organizations 30
Recent Papers and Reports: a Selected List 35
Guide to Publications 36

Advertisers

British Electrical Development Association *Inside back cover*
Coalite and Chemical Products Ltd. 34
Drummond Patents (Holdings) Ltd. 44
Gas Council .. .. *Inside front cover*
Ideal Boilers and Radiators Ltd. 38
Midland Rexco Ltd. .. .. .. *Outside back cover*
Mirrlees Watson Co. Ltd. 42
Solid Smokeless Fuels Federation 37
West's Gas Improvement Co. Ltd. 33
Woodall-Duckham Vertical Retort and Oven Construction Co. (1920) Ltd. 41

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Belfast, *Londonderry*

North West Division

Abram, Accrington, Altrincham, Ashton-under-Lyne, Atherton, Audenshaw, Bacup, Barrow-in-Furness, *Birkenhead*, Blackburn, Blackpool, Bolton, Bootle, Bredbury and Romiley, Brierfield, Burnley, Burnley R.D.C., Bury, Buxton, Chadderton, Cheadle and Gatley, Church, Clitheroe, Colne, Crewe, Crompton, Crosby, Darwen, Denton, Droylsden, Eccles, Ellesmere Port, Failsworth, Farnworth, Glossop, Great Harwood, Hale, Haydock, Hazel Grove and Bramhall, Heywood, Horwich, Hoylake, Huyton-with-Roby, Hyde, Irlam, Kearsley, Lancashire C.C., Lancaster, Leigh, Littleborough, Liverpool, Longdendale, Macclesfield, Manchester, Marple, Middleton, Middlewich, Nelson, Newton-le-Willows, Northwich, Oldham, Ormskirk, Padiham, Preston, Radcliffe, Rawtenstall, Rhyl, *Rishton*, Rochdale, Royton, St. Helens, Sale, Salford, Sandbach, *Southport*, Stalybridge, Stockport, Stretford, Swinton and Pendlebury, Thornton Cleveleys, Urmston, Wallasey, Warrington, *Warrington R.D.C.*, Whaley Bridge, *Whiston*, Widnes, Wigan, Wilmslow, Workington, Wrexham, Wrexham R.D.C.

North-East Division

Ashington, Bedlingtonshire, Berwick-on-Tweed, Billingham, Blaydon, Brandon and Byshottles, Castle Ward, Chester-le-Street R.D.C., Chester-le-Street U.D.C., Consett, Crook and Willington, Darlington, Durham, Eston, Felling, Gateshead, Gosforth, Hartlepool, Hebburn, Hetton, Houghton-le-Spring, Jarrow, Lanchester, Longbenton, Middlesborough, Newburn, Newcastle upon Tyne, Prudhoe, Redcar, Ryton, Saltburn and Marske-by-the-Sea, Seaham, Sedgefield, Skelton and Brotton, South Shields, Stanley, Stockton-on-Tees, Sunderland, Thornaby-on-Tees, Tynemouth, Wallsend, Washington, West Hartlepool, Whickham.

Yorkshire Division

Adwick-le-Street, Aireborough, Batley, Bentley-with-Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisborough, Darton, Dearne, Denby Dale, Dewsbury, Dodsworth, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth R.D.C., Hemsworth U.D.C., Hepton, Holmfirth, Horbury, Horsforth, Huddersfield, Hull, *Keighley*, Leeds, Meltham, Mexborough, Mirfield, Morley, Ossett, Otley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rothwell, Royston, *Scarborough*, Sheffield, Rotherham and District Smoke Abatement Committee, Shipley, Spenborough, Stanley (Yorks.), Stocksbridge, Swinton, Wakefield, Wakefield R.D.C., Wombwell, Worsborough, Wortley, York.

West Midlands Division

Bilston, Birmingham, Brierley Hill, Brownhills, Burton-on-Trent, Cannock, Coventry, Darlaston, Dawley, Dudley, Halesowen, Kidderminster, Leamington Spa, Meriden, Newcastle-under-Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby Rugeley, Sedgley, Smethwick, *Stafford*, Staffordshire C.C., Stoke-on-Trent, Stone, Tipton, Walsall, Warwickshire C.C., Wednesbury, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Alfreton, Basford, Beeston and Stapleford, Belper, Blackwell, Bolsover, Boston, *Cambridge*, Chesterfield, Chesterfield R.D.C., Clowne, Corby, Derby, Derby C.C. (Co. Planning Committee—Corporate), Eastwood, Gainsborough, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall, Ilkeston, Ipswich, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Louth, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Nottingham, Peterborough, Ripley, Rushden, Southwell, Staveley, Sutton-in-Ashfield, Swadlincote, West Bridgeford, Wigston, Worksop, Worksop R.D.C.

South-West Division

Abercarn, Aberdare, Abertillery, Bath, Bathavon, Bedwas and Machen, Bristol, *Caerphilly*, Cardiff, Cardiff R.D.C., Cheltenham, Cwmbran, Ebbw Vale, Gellygaer, Gloucester, Ilfracombe, Kingswood, Llanelly, Llantrisant and Llantwit Fadre, Mountain Ash, Mymyddislwyn, Neath, Newport (Mon.), Pontardawe, Pontypool, Pontypridd, *Poole*, Portishead, Port Talbot, Sodbury, *Swansea*, Swindon, Thornbury, Tredegar, Warmley, *Weston-super-Mare*.

South-East Division

Acton, Aylesbury, Banbury, Barking, Barnes, Battersea, Bedfordshire C.C., Bermondsey, Bexley, *Bournemouth*, Brentford and Chiswick, Brighton, Bromley, Camberwell, *Carshalton*, Chatham, Chelsea, Cheshunt, Chislehurst and Sidcup, Clacton, Crayford, *Croydon*, *Dagenham*, Dartford, Dartford R.D.C., Dover, Dunstable, Ealing, East Ham, Eastleigh, Edmonton, Erith, Farnborough, Feltham, Finchley, Finsbury, Friern Barnet, Fulham, *Gosport*, Gravesend, *Greenwich*, Guildford, Hackney, Hammersmith, Hampstead, Harrow, Havant and Waterloo, Hayes and Harlington, Heston and Isleworth, Hitchin, *Holborn*, Hornchurch, Horsham, Hove, Ilford, *Kensington*, Kingston-upon-Thames, *Lambeth*, *Lewisham*, *Leyton*, *Littlehampton*, London, City of, *Luton*, Maidenhead, Malden and Coombe, Merton and Morden, *Mitcham*, Northfleet, Ongar, Orpington, Oxford, *Paddington*, Penge, *Portsmouth*, *Reading*, *Reigate*, Rochester, Romford, St. Albans, St. Marylebone, *St. Pancras*, Shoreditch, Sittingbourne and Milton, Slough, Southall, *Southampton*, *Southend-on-Sea*, *Southgate*, Southwark, Southwick, Staines, Stepney, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Uxbridge, Walthamstow, Wanstead and Woodford, Watford, Watford R.D.C., Wembley, *West Ham*, Westminster, Willesden, Wimbledon, Windsor, Windsor R.D.C., *Wood Green*, *Woolwich*, Yiewsley and West Drayton.

TWENTY-THIRD ANNUAL REPORT

for the Year ended 31st December, 1952

GENERAL REVIEW

The London Smoke-Fog

The most oustanding event of 1952 to be recorded in this report was the London smoke-fog of December 5th to 8th. The first reported indications of its abnormally serious nature were the deaths of cattle at the Smithfield Show, which was a repetition of what occurred when the Show coincided with the severe smoke-fog of December, 1873. The consequences to human health, in mortality and incidence of illness, have not been completely assessed at the time of writing but it appears that 4,000 deaths in the Greater London area may be attributed to the fog. For the week ended 13th December, the number of deaths in the Administrative County of London has been exceeded only four times during the past century.

The impression had perhaps grown that such disasters were a thing of the past, although it may be recalled that the late Dr. J. S. Owens had pointed out that, given the necessary meteorological conditions, there was still enough pollution entering the atmosphere of London to cause fog as dangerous as any previously experienced

The Society urged the Government to undertake a comprehensive investigation into the disaster, particularly on the effects on health, including illness as well as deaths, and cited the Donora, U.S.A., investigations as a model of the kind of inquiry that could be made. Information is being received by the Society itself concerning the effects of the fog. Fuller reports will be published in SMOKELESS AIR as information becomes available.

Immediate comment may, however, be made on the strangely calm, and almost fatalistic, way in which so much death, suffering and incapacity is received. Without the superficial qualities of novelty, sensationalism, or drama, such an event creates less public interest than disasters of one-tenth its magnitude—with perhaps the exception of road casualties.

The Ridley Report

The lesson of the London fog has added force to the well-expressed views on smoke abatement of the Ridley Committee on National Fuel Policy. The Society submitted a memorandum, published in SMOKELESS AIR (No. 81, Spring, 1952), outlining its policy, and it was gratifying that the Committee's statements (Appendix IV of the Report) should in the main be an endorsement of this policy. Increased production of smokeless fuels, financial incentives for installing fuel efficiency equipment, more training of stokers, prior approval, and the establishment of more smokeless zones are among the points specifically mentioned.

The Society is considering ways and means for attempting to bring before a wider public those parts of the Ridley Report that are of importance to the smoke abatement movement.

Smokeless Zones

The second smokeless zone in the country, that for the central area of Manchester, came into being on 1st May, 1952. Excellent publicity on the change appears to have led to its willing acceptance and to an absence, since then, of more than minor difficulties.

Early in the year it was announced that the Minister of Housing and Local Government had been unable to confirm the Salford scheme for three smokeless zones in largely residential areas. The reasons given for his refusal were that the conversion of installations would be difficult because of steel shortage, and that the supply of smokeless fuel could not be ensured. It may, however, be pointed out (1) that the smokeless fuel grates required would be a minute fraction of the 1,700,000 sold during the year, (2) that the suppliers of coke and Coalite had guaranteed to supply the fuels required, and (3) that the supply of coke is such that the winter allocation has been increased by 10 cwt. per household. Because of the experimental importance of the scheme, if for no other reason, it

is regretted that the Minister could not see his way to implement one of the important recommendations of the Simon and Ridley Committees.

Domestic Fuel Policy

The Society has already (SMOKELESS AIR, No. 84, Winter 1952) expressed its views on the policy of using for domestic purposes " rough small " or " nutty slack " coal, and it may again be stressed that the most objectionable factor is the sponsoring of the use of slack for overnight burning in the modern approved smokeless fuel grates—a practice that is wasting coal and creating, through a process of slow distillation (rather than burning) a substantial new source of domestic smoke.

The Case Against Pollution

New evidence about the deleterious effects of smoke and other air pollution continue to be noted, and mention may be made, for example, of articles that have appeared in SMOKELESS AIR during the year on the effects on plant life, the correlation between corrosion of iron and steel with the sulphur acid content of the atmosphere, the statistical research in connection with the incidence of lung cancer, and an American medical evaluation of the epidemiology of smoke pollution. New publications of importance issued during the year, in addition to the Ridley Report, include Dr. A. R. Meetham's book on Atmospheric Pollution and the report of the U.S. Technical Conference of 1950.

It is appropriate also to mention the important growth in the work on the measurement of atmospheric pollution, under the auspices of the Fuel Research Station of the D.S.J.R., both in the number of local authorities co-operating and the number of instruments in use. This, together with the increased number of local authorities affiliated to the Society, is a sign of the growing recognition of their responsibility by local authorities, which in its turn is one sign among many of a most encouraging growth of public awakening about air pollution.

THE SOCIETY

The progress of the Society during the year has been satisfactory, by whatever means one attempts to measure it. Membership has grown, the financial position, as mentioned later, is less difficult, and within the limits of its resources it has carried out much useful work towards the fulfilment of its declared objectives.

Finance

Increasing costs of all kinds made it necessary early in the year to appeal to members to increase their subscriptions. Many members responded and the financial position became a little easier. New membership and increased revenue also assisted, with the result that for the first time for several years there was a reasonable credit balance on the year's accounts—although not enough to meet the withdrawals from reserves that had been required in recent years. At the suggestion of a number of members, who preferred an agreed change in subscription rates to " voluntary " increases, an appropriate resolution for making the necessary amendments to the constitution was drafted by the Executive Council and moved at the Annual General Meeting at Portsmouth on 26th September. The resolution, which was carried without dissent, increases each of the various subscription rates by proportionate amounts. A new printing of the constitution, giving the changes, is being prepared.

An influentially signed letter of appeal that was published in *The Times* on 4th March was disappointing in its direct results, but reprints have proved to be useful in making membership invitations. Other work on increasing membership, that it had been hoped could be started, could not be properly developed because of shortage of staff—the position being that if more staff could be afforded, more attention could be devoted to obtaining further funds.

The Portsmouth Conference

The annual conference, held at Portsmouth on 24th to 26th September, was declared by many of the 400 members and delegates who attended to be the best yet organized by the Society. The programme included a series of " Progress Reports " on various subjects, including an important contribution on smoke in relation to lung cancer; a session on

incentives for smoke prevention, industrial and domestic, and a technical session on the problems of the iron and steel industry. The papers, discussions, and other details are given in the printed volume of *Proceedings*.

The following resolutions were passed at the conference:

(1) That this Conference welcomes, among other proposals that will promote smoke prevention, the recommendations of the Ridley Committee for the setting up of further smokeless zones and the increased production of solid smokeless fuel. Accordingly, and in view of new evidence that the dangers to health from domestic smoke may be greater than have previously been recognized, the Conference urges the Minister of Housing and Local Government to grant permission for the establishment of proposed smokeless zones; urges the Minister of Fuel and Power to do everything possible to develop the availability of smokeless solid fuel of all kinds for domestic purposes; and invites all local authorities to support these requests.

(2) That all persons who have charge of the operation or maintenance of power plant, whether steam, oil, gas, or electrical, should possess sufficient theoretical knowledge and practical experience, eventually to be recognized by the holding of a certificate, to ensure that such plant shall be worked with maximum efficiency and safety.

The resolutions were subsequently submitted to the Government departments concerned and to all local authorities. Replies from the latter on the first resolution, in nearly every case giving it support, were continuing to be received at the time of writing this report, but it is evident that these resolutions have been widely discussed by local authorities throughout the country. The discussions themselves may be regarded as valuable publicity work for the Society.

The Sanitary Inspectors' Working Party

The Society was invited to submit its views on the training and status of Sanitary Inspectors, in respect of smoke abatement, to this Working Party of the Ministry of Health. A deputation, led by the Chairman of the Executive Council, Mr. S. N. Duguid, also met the Working Party and discussed the memorandum with them. The text of the memorandum was published in SMOKELESS AIR (No. 83, Autumn 1952).

Reference was made earlier in this report to the memorandum from the Society submitted to the Ridley Committee on National Fuel Policy.

" Smokeless Air "

The quarterly journal has continued to be published and has included a number of articles and reports of importance and special interest. The circulation now exceeds 4,000 copies per issue. Advertising has been maintained at a steady level, the revenue for which makes it possible to keep up the quality of the publication despite higher printing costs.

The Divisions

The Divisional Reports that follow speak for themselves, but the opportunity may be taken of expressing appreciation, which it is felt will be on behalf of all members, to the Divisional Councils, and especially their Officers, for the enterprise and usefulness of their many activities. The absence of a report from the North East Division is not due to any fault of members in that area, and least of all to the Officers but to an unfortunate suspension of most activities because of impediments put in the way of local authority representatives wishing to attend meetings. Efforts are still being made to resolve the legalistic problem that is the real cause of the situation.

If it is the wish of the members concerned, it is hoped in the near future to take steps towards the establishment of a Divisional Council in the South East, an area that contains more members than any other Division, and which affords many opportunities for important work.

" Nuisance " Inquiries

During the year the Technical Committee discussed a report on the technical inquiries and complaints about specific pollution emissions received and dealt with by the Society, and classified according to the origins of the " nuisance." The Committee requested that a statement on this, covering the whole year, should be included in this Report, and accordingly the following details may be grouped as follows: Laundries and dyeworks, timber and wood works, unspecified factories; offices, hospitals, schools and restaurants; gasworks, cement works, power stations, railways and steelworks; and miscellaneous installations—crematoria, bakehouse, fish curing plants, bacon curing factory and—from overseas —boiler plant burning sugar cane waste.

This represents only a small proportion of the numbers of complaints about air pollution that are known to be made each

year, and which are to some extent indicated by the Press cuttings received by the Society. They do, however, give some idea of one of the Society's services, and of the sources of pollution involved. In most cases the action taken is to refer the inquirer to, or to approach directly, the responsible local authority, or to suggest where more explicit advice may be sought.

It should be mentioned that the above statement does not refer to requests for information, references to publications, and general inquiries. These constitute a further public service and in number greatly exceed the " complaints " section. It is interesting to note the growth in the number of inquiries for information received from the Press, free-lance writers and students.

S. N. DUGUID, *Chairman.*
ERNEST SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *General Secretary.*

SCOTTISH DIVISION

The year 1952 has been one of continued progress and sustained interest for the Scottish Division. A gratifying response has again been received to the Division's annual winter course in fuel economy, smoke abatement and boiler-house practice, the number of students enrolling and the attendance percentage remaining at a high level.

A very successful conference was held on 22nd and 23rd May, 1952, in Perth, where hospitality was extended by the Town Council. Most interesting and instructive papers were given by Mr. Magnus Herd, City Analyst, Glasgow, and Miss O. M. Willis, Women's Advisory Council on Solid Fuel, on the first day; and by Mr. William Short, Ministry of Fuel and Power, Dr. Stuart Laidlaw, Medical Officer of Health, Glasgow, and Mr. Arnold Marsh, on the second day. The delegates' visit on the first day of the conference to the dam and hydro-electric station at Pitlochry was dealt with by Mr. Marsh in the summer edition of SMOKELESS AIR.

East Kilbride New Town has submitted, for the approval of the appropriate authority, plans for a smokeless zone in the centre of the town, and the Scottish Division have made representations to the Department of Health in support of the proposals.

N. P. FRASER, *Hon. Secretary.*

NORTH WEST DIVISION

The North West Division has continued to maintain steady progress during the year 1952 and interest in smoke abatement has been sustained. The year will be hallmarked in the history of the smoke abatement movement in the North West because the smokeless zone in the central area of the City of Manchester came into operation on 1st May. The progress of this innovation will be watched with the closest interest and it is hoped that the success of this experiment will be such as to encourage the Government to permit other local authorities to bring similar schemes into operation.

Meetings of the Divisional Council have been held at St. Helens, Manchester and Burnley and the average attendance was higher than in the previous year. At St. Helens we had the privilege of joining forces with the local Atmospheric Pollution Consultative Council in one of their ordinary meetings. Similarly at Burnley, the local Smoke Abatement Advisory Committee invited the Divisional Council to attend one of their sessions. It was most interesting and encouraging to hear how the smoke problem is being tackled " on the spot," and there can be no doubt that these Committees are making an excellent contribution towards smoke abatement. The inclusion of a paper on " Local Joint Consultative Committees " in one of the sessions at the Portsmouth Conference was a well deserved tribute, and we hope that other towns will follow the lead.

The Divisional Council has continued its deliberations on the question of the supply and distribution of solid smokeless

fuels and, after assembling and examining evidence, will be making recommendations early in the New Year for the consideration of the National Executive Council.

The Annual Meeting of the Division held in May was very well attended, the special feature being an address by Dr. A. Parker, C.B.E., D.SC., Director of Fuel Research, on "Domestic Heating—Efficiency and Smoke Abatement," which was most informative and evoked a very interesting discussion.

Our joint meeting with the North Western Section of the Institute of Fuel was a great success, a larger attendance than usual was attracted to hear Dr. J. C. Weston, PH.D., of the Building Research Station, give a paper on "House Heating," in which he described the experiments which had taken place with various types of domestic heating systems. The very full discussion which ensued demonstrated the interest in this subject.

Speakers have been supplied to two public meetings and the speakers were impressed by the interest shown in the subject. This is an encouraging feature as also is the greater attention focussed on atmospheric pollution by the Press, radio and television. Continued development on these lines will secure the fulfilment of at least one of the objectives of the Society, viz.—a well-informed public opinion.

H. MOORE, *Hon. Secretary.*

YORKSHIRE DIVISION

During 1952 the Yorkshire Divisional Council has met on four occasions with an average attendance of 16.

The first meeting was held in Leeds on 2nd May, nine elected members being present. Eleven representatives of other bodies were co-opted to the Divisional Council for the 1952 session.

On 23rd June, 24 members paid a visit to the Rawmarsh works of the Park Gate Iron & Steel Co. Ltd., where they were warmly welcomed by Dr. Fairley, who gave details of the Company's production and explained the methods of minimizing atmospheric pollution from the various processes carried out in their works. After being entertained to lunch by the Company, the Council were taken for a tour of the works, which cover an area of 35 acres. Blast furnaces, cogging and rolling mills, and the other varied plant and processes were seen, the Council being very interested in the gas cleaning processes which were explained by the Company's officers, who kindly acted as guides throughout the tour.

Halifax was visited by the Council on 21st July and they were welcomed by the Mayor, Alderman W. Regan, J.P., who indicated his appreciation of the work of the National Smoke Abatement Society in giving publicity to the advantages of a smoke - free atmosphere. During the morning meeting, Dr. G. C. F. Roe, Medical Officer of Health for Halifax, gave a short statement on atmospheric pollution and carcinogens in the causation of cancer. The Chief Sanitary Inspector of Halifax, Mr. H. Margerison, explained to the Council a particular nuisance which had arisen from fine drizzle or rain emanating from the cooling towers of the Halifax Power Station. Mr. H. E. Vickers, of the B.E.A., explained the experiments carried out to abate this nuisance. The result of this work—the designing and fitting of a precipitation eliminator to the cooling towers—was inspected by the Council after the meeting.

The final meeting of the session was held in Leeds on 13th October and attended by 15 members. A general discussion was held on the comparative prices of coal and coke and a tentative programme of meetings for 1953 was drawn up.

The Kingston-upon-Hull Corporation Act, 1951, completed its passage through Parliament and received the Royal Assent during the year. As originally drafted it included a section related to smokeless zones, but this met with local opposition and was deleted at a town's meeting. Other provisions relating to smoke which were successfully carried through included sections concerning (*a*) prior approval; (*b*) height of new chimneys; and (*c*) power to order alteration to domestic chimneys.

The Yorkshire Division is pleased to report an increase in membership during the year, including six new Local Authority members.

At our fifth Annual General Meeting held in Leeds in November, Mr. Arnold Marsh addressed the 75 delegates on "Problems and Prospects in Smoke

Abatement." This address was listened to with great interest by all present and a special meeting to discuss Mr. Marsh's paper is being arranged for the New Year.

In reviewing the work of the Divisional Council during the past few years we feel that greater interest has been stimulated in the Yorkshire area, shown by the steady increase in membership, especially Local Authority membership; and that the general public are becoming much more " smoke-conscious " in response to more enlightened Press publicity.

JAMES GOODFELLOW,
Hon. Secretary.

EAST MIDLANDS DIVISION

The year 1952 showed considerable progress in the Society's work in the East Midlands. Publicity, by way of lectures and addresses and by Press reports and comments, proved most helpful and successful. Subsequent enquiries from members of the public regarding atmospheric pollution problems indicated a general interest in the subject. Citizens of our urban areas are undoubtedly awakening to the importance of the Society's work and there is evidence of increasing realization that steps must be taken to achieve a smokeless atmosphere.

An event of much importance in the East Midlands, and indeed to the whole country, was the decision of the Nottingham City Council to develop the Clifton district as a smokeless area. Clifton is situated to the south of the Trent and has been acquired by the Corporation for the purpose of vast housing developments. At the end of 1952, approximately 3,000 houses were either completed or under contract and 1,000 of those houses were occupied. This striking smokeless development is a valuable demonstration of the aims and objects of the Society and has done much to strengthen public opinion as to the advantages of clean air.

The following meetings were held in the Division during 1952:

Leicester, 10*th January*—Delegates were officially welcomed to Leicester by the Lord Mayor (Alderman T. Rowland Hill, J.P.) and the High Bailiff (Councillor S. Cooper). An address entitled " The Measurement of Atmospheric Pollution " was given by S. H. Richards, Superintendent of Observations (Atmospheric Pollution Research), D.S.I.R. The meeting was designed to assist those interested in the investigation of atmospheric pollution and in the study of pollution and its prevention.

Lincoln, 17*th April*—Members were enabled to inspect and study damage from atmospheric pollution to the structure and fabric of Lincoln Cathedral. The visit was arranged by the Surveyor and Clerk of Works to the Dean and Chapter (Robert S. Godfrey). The Mayor of Lincoln (Councillor T. F. Taylor, J.P.) supported by the Sheriff and the Chairman of the Health Committee, gave an official welcome and entertained the delegates to luncheon. An address entitled " Damage to Structures caused by Atmospheric Pollution " was given by T. Henry Turner, M.SC.

Nottingham, 3*rd July*—At this Annual General Meeting, Councillor Stanley Jennings (Bolsover) was appointed Chairman of the Division for the year 1952 to 1953 and Councillor Arthur Mead was appointed Vice-Chairman. An address was given by the General Secretary of the Society (Arnold Marsh, M.SC.) on the subject of " Smokeless Zones."

Derby, 13*th November*—A tour of the Litchurch Gas Works and a demonstration of smokeless domestic appliances were arranged by the Divisional General Manager, Notts. and Derby Division of the East Midlands Gas Board (K. L. Pearce, Esq.). The Board entertained delegates to luncheon and at a meeting in The Guildhall, the Mayor (Councillor T. Dennis) gave an official welcome. An address entitled " Smoke Abatement with Fuel Economy in the Home " was given by the Coal and By-Products Officer of the East Midlands Gas Board (M. Barash, PH.D.).

The meetings all proved highly successful and of great interest to the members and delegates who attended.

A. WADE,
Hon. Secretary.

WEST MIDLANDS DIVISION

The results of the year's work can legitimately be regarded as satisfactory. Membership has continued to rise, and whilst not spectacular in numbers, any increase adds further support to the aims and ideals of the Society.

Our meetings have received civic support, and excellent reports and articles on atmospheric problems have appeared in the local Press.

The Annual General Meeting was held at Hanley Town Hall, where the 72 delegates were afforded a civic welcome and luncheon by the Lord Mayor, Alderman H. Barks, J.P. At the conclusion of the business meeting an excellent address was given by Mr. Eric Bellingham, Director General, Coal Utilization Council. During the afternoon, delegates were transported to the Penkhull Laboratories of the Ceramic Research Association and were welcomed by Dr. A. T. Green, O.B.E., Director of Research, and an opportunity was afforded of visiting every branch of the research activities.

Alderman G. J. Timmis, O.B.E., J.P., Vice-President of the Society, and Mr. D. Hurst, Chief Sanitary Inspector of Stoke-on-Trent, rendered valuable services towards making this Annual General Meeting so noteworthy.

The Management Committee have continued in their efforts to influence and encourage appropriate industrial concerns to consider the use of the Society's Journals as advertising media.

During the year, the Chairman of the Division, Councillor J. M. Morrin, Health Committee Birmingham, has unfortunately been compelled to resign on medical advice from all civic duties. It is with regret one has to report the loss sustained by the Division in the unexpected death of the Deputy Chairman, Alderman G. E. Beavon, Vice-President of the Society.

A joint meeting with the members of the Midland Branches of the Electrical Association for Women was held at the Birmingham Council House under the combined chairmanship of Alderman G. E. Barrow, Health Committee Birmingham, and Alderman S. W. Lewis, Chairman of the Midlands Electricity Board. An excellent paper was read by a member of the management Committee, Mr. C. Nield, Commercial Department, Midlands Electricity Board, on "Industrial and Domestic Uses of Electricity towards Smoke Abatement," and the Honorary Secretary also added a contribution on "The Need for Smoke Abatement."

Advice and technical details have been given to several members of the Division, who have requested same, and the liaison between the regional bodies engaged on activities allied with the cause of smoke abatement has been maintained.

An invitation for several members of the Division to attend a Brains Trust with the Midland Section of the Institute of Fuel, was accepted, and as the subject was "Domestic Fuel" the range of questions and answers gave ample scope on the benefits or otherwise of nutty slack.

The West Midlands Division was well represented at the Annual Conference, and it was pleasing to note that Alderman Miss A. Arnold, Health Committee, Coventry, was duly elected as a Vice-President of the Society.

An interesting paper was given to the Coventry and District Branch of the Electrical Association for Women by Mr. T. E. Wilmott of Coventry Health Department on "Atmospheric Pollution and the Coventry Smokeless Zone."

The Management Committee place great value upon such local activities in various parts of the region, and we look forward to another successful year.

G. W. FARQUHARSON,
Hon. Secretary.

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given in next column.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal SMOKELESS AIR, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 15s. 0d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations:

Less than 25,000	..	3 guineas
25,000 to 50,000	..	4 ,,
50,000 to 75,000	..	5 ,,
75,000 to 100,000	..	7 ,,
100,000 to 250,000	..	12 ,,
250,000 to 500,000	..	18 ,,
Over 500,000 ..	..	30 ,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 12 guineas for members appointing two Representatives ; not less than 7 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for SMOKELESS AIR and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows:

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides and Film Strips

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages. Film strips are at present in course of preparation.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available for loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to Chandos House by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available: (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) Prize-winning photo-colour poster 30 in. × 20 in. Price 6d. each. (3) New Pictorial chart primarily for school use. "These are the Things that Smoke Does," 30 in. × 20 in. Price 6d. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's "Guide to Publications" will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. 6d. in the £ the gross amount is £9 10s. 6d., and the Society thus receives £4 10s. 6d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name) .....*of* .....
(address).....(description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of Chandos House, Buckingham Gate, in the City of Westminster, that for a period of seven years from the first day of.....,195....., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of.....195.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....
(Signature) .....

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1952

Year ended June 30th, 1951	INCOME				Year ended June 30th, 1951	EXPENDITURE			
£				£ s. d.	£				£ s. d.
4,609	Subscriptions			5,438 14 7	2,416	Salaries and Fees			2,595 8 0
111	Sale of Literature			113 3 10	489	Rent, Rates, Gas, Water and Heating			512 3 3
41	Repayment of Income Tax			49 14 5	131	Office Supplies and Statonery			149 10 9
1	Conference Fees—Blackpool, 1951	745 13 0			45	Travelling Expenses			40 14 1
	Less—Expenses and Printing	593 4 3			577	General Expenses, Postages and Telephone			606 1 0
			152 8 9		102	Divisional Expenses			275 0 0
6	Sundry Receipts		43 12 4				£ s. d.		
	DIVIDENDS FROM INVESTMENTS, etc.					Printing *Smokeless Air*	1,207 5 8		
6	Commercial Union Assurance Co. Ltd.		5 18 1		547	*Less*—Receipts from Advertisements	820 2 2		
6	British Transport		5 17 0					387 3 6	
10	Post Office Savings Bank		8 4 6		384	Printing and Publishing Booklets, etc.		273 6 11	
13	Interest-Manchester and Salford Savings Bank		12 17 6		115	Staff Pension Scheme		90 6 0	
10	Excess of Expenditure over Income		—		7	Furniture and Fittings		22 10 0	
						Excess of Income over Expenditure		878 7 6	
£4,813			£5,830 11 0		£4,813			£5,830 11 0	

Defence Bond Fund

£		£ s. d.	£		£ s. d.
547	Balance, June 30th, 1951	561 11 7	562	Balance, June 30th, 1952	576 15 1
15	Interest	15 3 6			
£562		£576 15 1	£562		£576 15 1

Balance Sheet, June 30th, 1952

£		£ s. d.	£ s. d.	£		£ s. d.	£ s. d.
	SURPLUS				INVESTMENTS (General)		
1,196	Balance as at June 30th, 1951	1,186 1 1			Commercial Union Assurance Co.—		
Deduct				206	£25 Stock at Cost	205 11 0	
10	*Add*—Excess of Income over Expenditure	878 7 6			British Transport		
			2,064 8 7	279	£371 9s. 10d. 3% Guaranteed Stock, 1978-88	279 5 11	
1,186				329	Post Office Savings Bank	337 10 6	
	Portsmouth Conference, 1952			516	Manchester and Salford Savings Bank—Deposit	529 2 8	
255	Fees received in advance	327 12 0					1,351 10 1
	Less—Printing	26 19 6		104	Cash at Bank and in hand (General)		1,005 11 0
			300 12 6		DEFENCE BOND FUND		
3	Subscriptions in advance		2 0 0	170	3% Defence Bonds	185 0 0	
	DEFENCE BOND FUND			390	2½% Defence Bonds	390 0 0	
562	Balance		576 15 1	2	Cash in hand	1 15 1	
							576 15 1
				10	Electricity Deposit		10 0 0
£2,006			£2,943 16 2	£2,006			£2,943 16 2

Audited and found correct.
ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

August 8th, 1952.

NATIONAL SMOKE ABATEMENT SOCIETY

Divisional Accounts : Summary

Division	*Year Ended*	*Commencing Balance*	*Grants*	*Other Income*	*Total*	*Expenditure*	*Closing Balance*
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Scotland	31.3.52	196 12 6	100 0 0	(*a*) 122 6 9	418 19 3	(*a*) 162 10 1	256 9 2
North West	31.3.52	102 12 11	50 0 0	—	152 12 11	45 0 9	107 12 2
North East	31.5.52	71 2 2	30 0 0	1 18 2	103 0 4	5 13 2	97 7 2
Yorkshire	30.6.52	12 11 11	40 0 0	1 6	52 13 5	39 4 7	13 8 10
West Midlands	30.6.52	2 10 5	40 0 0	—	42 10 5	42 16 11	*Deficit* 6 6
East Midlands	31.3.52	11 15 1	15 0 0	—	26 15 1	19 15 4	6 19 9
Total		397 5 0	275 0 0	124 6 5	796 11 5	315 0 10	481 10 7

NOTE

(*a*) Includes fees and expenses for Conference and Firemen's Classes.

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1952

* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation	10	10	0
Airdrie Corporation	3	3	0
Ardrossan Corporation	2	2	0
Ayr Corporation	3	3	0
Ayr County Council	5	0	0
Barrhead Corporation	2	2	0
British Electricity Authority—			
South East Scotland Division	10	10	0
South West Scotland Division	10	10	0
Brown, Robert C.	1	1	0
Clackmannan County Council	3	3	0
Clydebank Corporation	6	6	0
Coatbridge Corporation	3	3	0
Currie, T. S.		10	6
Dumbarton Corporation	2	2	0
Dunbarton County Council	4	4	0
Dundee Corporation	10	10	0
Dunfermline Corporation	3	3	0
East Kilbride Development Corporation	5	5	0
Edinburgh Corporation	21	0	0
Edward, J.	1	1	0
Falconer, Mrs. J.		10	6
Falkirk Corporation	3	3	0
Forrest, Frew & Co. Ltd.		10	6
Glasgow Corporation	30	0	0
Glasgow Women Citizens' Association	1	1	0
Grangemouth Corporation	2	2	0
Grattidge, H. H.		10	0
Greenock Corporation	5	5	0
Hamilton Corporation	3	3	0
Hawick Corporation	2	2	0
Heriot-Watt College	1	1	0
Howden, James & Co. Ltd.	10	10	0
Hughes, H. S.		10	6
Inverness Corporation	3	3	0
Irvine Corporation	3	3	0
Jewell, Mrs. K. I.		10	6
Johnstone Corporation	3	3	0
Jones, Samuel & Co. Ltd.	5	5	0
Kilmarnock Corporation	3	3	0
Kilsyth Corporation	2	2	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	2	2	0
Lanark County Council	21	0	0
Macmillan, A. M.	1	1	0
McCallum & Craigie Ltd.		10	6
Motherwell & Wishaw Corporation	5	12	0
Musselburgh Corporation	2	2	0
Paisley Corporation	5	5	0
Paton, T.	1	1	0
Perth Corporation	3	3	0
Port Glasgow Corporation	2	2	0
Ramsay, Sir James Douglas	1	0	0
Renfrew Corporation	2	2	0
Ritchie, A. W.		10	6
Ritchie, G. B.		10	6
Roberton, Bailie Dr. V.	1	1	0
Rothesay Corporation	2	2	0
Royal Sanitary Association of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Associations	2	2	0
Scottish Gas Board	73	10	0
Scott Park, Dr. and Mrs. S. D.	1	1	0
Smith, Mrs. Brownhill	1	1	0
South East Scotland Electricity Board	10	10	0
South West Scotland Electricity Board	10	10	0
Stein, John G. & Co. Ltd.	5	5	0
Stirling County Council (1951)	10	10	0
(1952)	15	15	0
Stirling Corporation	3	3	0
Waldie, James & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		10	6

Northern Ireland Division

Londonderry Corporation	2	2	0
Young, Miss A. C.		10	0

North Western Division

Abram U.D.C.	2	2	0
Accrington Corporation	3	3	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.		15	6
Altrincham Corporation	3	3	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous (1951)	1	1	0
(1952)	1	1	0
Ashton Bros. & Co. Ltd.	2	2	0
Ashton-under-Lyne Corporation	5	5	0
Aston, R. S.		10	6
Atherton U.D.C.	2	2	0
Audenshaw U.D.C.	2	2	0
Averill, C. R. Ltd.	1	1	0
Bacup Corporation	2	2	0
Barlow, D. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co. Ltd.	2	2	0
Bayes, Councillor Mrs. M.	2	2	0
Beard, E.	1	1	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	10	10	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	10	10	0
Bootle Corporation	6	6	0
Bowyer, Councillor Mrs. N.		10	6
Brierfield U.D.C.	2	2	0
British Electricity Authority—			
Merseyside and N. Wales Division	10	10	0
North Western Division	10	10	0
British Insulated Callender's Cables Ltd.	7	7	0
Bryan, G. T.	1	0	0
Burnley Corporation	5	5	0
Burnley R.D.C.	4	4	0
Bury Corporation	4	4	0
Buxton Corporation	2	2	0
Chadderton U.D.C.	3	3	0
Cheadle and Gatley U.D.C.	3	3	0
Church U.D.C.	2	2	0
Clegg, H.		10	6
Clitheroe Corporation	2	2	0
Colne Corporation	2	2	0
Cooper, Miss I.	1	1	0

	£	s.	d.
Coulthard, Dr. A.		5	0
Coulthard, Miss D.		7	6
Crewe Corporation	4	4	0
Crompton U.D.C.	3	3	0
Crosby Corporation (1951)	4	4	0
(1952)	4	4	0
Darwen Corporation	3	3	0
Davies, D. E.		10	6
Davies, L.		10	6
Denton U.D.C.	2	2	0
Droylsden U.D.C.	4	4	0
*Duguid, S. N.	3	3	0
Duguid, Mrs. S. N.	1	1	0
Eccles Corporation	4	4	0
Ellesmere Port U.D.C.	3	3	0
Failsworth U.D.C.	2	2	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		10	6
*Forrester, R. E.	1	0	0
Franklin, N. J.		10	6
Gandy, Mrs. L. M.		10	6
Gavaghan, Mrs. L. A.	2	2	0
Glossop Corporation	2	2	0
Gray, V. R.		10	6
Great Harwood U.D.C.	2	2	0
Gregory, J.	1	0	0
Griffel, Dr. W.		10	6
Griffiths, The Misses	1	0	0
Hale U.D.C.	2	2	0
Hall, E. N.		10	6
Hall & Pickles Ltd.	50	10	0
Hancock, A.	1	1	0
Hartley, G. E.		10	6
*Hayhurst, Mr. H. and Mrs. L.	1	1	0
Hazel Grove and Bramhall U.D.C.	2	2	0
*Herbert, J. L.		10	6
Hetherington, H.		10	6
Heywood Corporation	2	2	0
Hope, S.	1	1	0
Horwich U.D.C.	2	2	0
Hutchinson, Colonel R.		10	6
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	3	3	0
Hyde, F.	1	1	0
Irlam U.D.C.	2	2	0
Jackson, C. L.	2	2	0
Jewsbury, S.		10	6
Johnston, S.		5	0
Jones, P. G.		10	6
Kay, Miss D.		7	6
Keddie, Dr. J. T. Chalmers		10	6
*Kennedy, W. B.		10	6
*Kirkman, P. D.	1	1	0
*Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council (1951)	26	5	0
(1952)	26	5	0
Lancaster Corporation	3	3	0
Langford, A. S.		10	6
Lee, Sir Kenneth	1	1	0
Lees, Miss M.	1	1	0
Leigh Corporation	4	4	0
Littleborough U.D.C.	2	2	0
Liverpool Corporation	26	5	0
Longdendale U.D.C.	2	2	0
Macclesfield Corporation	3	3	0
MacWilliam, Dr. H. H.		10	6
Manchester Corporation	42	0	0
Manchester and District Smoke Abatement Committee	10	10	0
Marple U.D.C.	2	2	0
Mather, L. E.	2	2	0
Mather, W. L.		10	6
Mather & Platt Ltd.	10	10	0
Matthews, W.	1	0	0
McKellen, N.	1	1	0
McLaughlin, T. C.		10	6
Melland, Mrs. W	1	1	0
Merseyside and North Wales Electricity Board	10	10	0
Metropolitan-Vickers Electrical Co. Ltd.	8	8	0
Middleton Corporation	4	4	0
Middlewich U.D.C.	2	2	0
Mitchell, L. A.	1	1	0
Morrison, Dr. J.	1	1	0
Nelson Corporation	4	4	0
Newton-le-Willows U.D.C.	3	3	0
Northern Gas Board—Carlisle	1	11	6
Penrith		10	6
Workington	1	11	6
North Western Electricity Board	10	0	0
North Western Gas Board	105	0	0
Northwich U.D.C.	2	2	0
Oldham Corporation	10	10	0
Ormskirk U.D.C.	2	2	0
Padiham U.D.C.	2	2	0
Parker, H.	1	0	0
Pike, Miss I. M.		15	0
*Polding, W. W.		10	6
Pontefract Bros.	2	2	0
Preston Corporation	10	10	0
Radcliffe Corporation	2	2	0
Rawtenstall Corporation	3	3	0
Redfern, P. (1951)		10	0
(1952)		5	0
Refuge Assurance Company	10	10	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	2	2	0
*Robinson, Alderman J.	1	0	0
Rochdale Corporation	6	16	6
Royton U.D.C.	2	2	0
St. Helens Corporation	10	10	0
Sale Corporation	3	3	0
Salford Corporation	10	10	0
Sandbach U.D.C.	2	2	0
Sandbach, Miss E. A. (1951)		10	6
(1952)		10	6
Sanderson, R. C.	1	1	0
*Saunders, P. H.	1	0	0
*Scott, Mrs. A. O. (1951)		10	0
(1952)	1	0	0
Shamash, E.	4	0	0
Sharp, R.		5	0
Shaw, Mrs. M.		10	6
*Shaw, R. D.		15	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	5	5	0
*Smith, H.	5	5	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation	3	0	0
Stockport Corporation	10	10	0
Stretford Corporation	5	5	0
*Swale, W. E.		10	6
Swinton and Pendlebury Corporation	3	3	0
Taylor, C. P.		10	6
*Taylor, H. F.		12	6
Taylor, Miss M. R.	1	0	0
Thornton Cleveleys U.D.C.	2	2	0
Thornton Literary and Social Circle		10	6
*Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd. (1951)	5	5	0
(1952)	6	0	0
Tootall, Broadhurst, Lee and Co. Ltd.	10	0	0
Unsworth, J.	1	1	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation (1951)	5	5	0
(1952)	5	5	0
Walton, T.		10	6
Warrington Corporation	7	7	0
Warrington R.D.C.	2	2	0
*Wells, Dr. N. H.		5	0
Westminster Dredging Co. Ltd.	2	2	0
West's Gas Improvement Co. Ltd.	10	10	0
Whaley Bridge U.D.C.	2	2	0
Whiston R.D.C.	1	1	0
Widnes Corporation	3	3	0
Wigan Corporation	8	8	0
Wigglesworth, Miss E.		12	6
Williamson, J. G.		15	0
Wilmslow U.D.C.	2	2	0
Winder, F.		10	6
Woodward, W.	1	1	0
Workington Corporation	3	3	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	4	4	0

North East Division

	£	s.	d.
Angus, Col. E. G.	3	3	0
Ashington U.D.C.	4	14	6
Bedlingtonshire U.D.C.	3	3	0
Berwick-on-Tweed Corporation	2	2	0
Billingham U.D.C.	2	2	0
Blaydon U.D.C.	3	3	0
Brandon & Byshottles U.D.C.	2	2	0
British Electricity Authority—North Eastern Division	10	10	0
Caller, Dr. S.		10	6
Chester-le-Street R.D.C.	2	2	0
Chester-le-Street U.D.C.	3	3	0
Consett U.D.C.	3	3	0
Crook & Willington U.D.C.	3	3	0
Darlington Corporation	7	7	0
Durham R.D.C.	3	3	0
Eston U.D.C. (1951)	3	3	0
(1952)	4	4	0
Felling U.D.C.	2	2	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	10	10	0
Gosforth U.D.C.	2	2	0
Green, Miss E.		10	6
Hartlepool Corporation	3	3	0
Hebburn U.D.C.	2	2	0
Hetton U.D.C.	3	3	0
Houghton-le-Spring U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	21	0	0
*Isaac, P. C. G.		10	6
Jarrow Corporation	3	3	0
Lanchester R.D.C.	2	2	0
Longbenton U.D.C.	2	2	0
Middlesbrough Corporation	10	10	0
Newburn U.D.C.	2	2	0
Newcastle-upon-Tyne Corporation	21	0	0
Nicol, W. T.		10	6
North Eastern Electricity Board	10	10	0
Northern Gas Board, Blyth	1	1	0
,, Darlington	3	3	0
,, Hexham		10	6
,, Middlesbrough	4	4	0
,, Newcastle-on-Tyne	21	0	0
,, Stockton-on-Tees	4	4	0
,, Sunderland	4	4	0
*Palmer, F. E.	2	2	0
Power Gas Corporation	10	10	0
Prudhoe U.D.C.	2	2	0
Redcar Corporation	2	16	0
Ryton U.D.C.	2	2	0
Saltburn & Marske-by-the-Sea U.D.C.	2	2	0
Seaham U.D.C. (1951)	3	3	0
(1952)	3	3	0
Sedgefield R.D.C.	3	3	0
South Shields Corporation	15	15	0
Stanley (Co. Durham) U.D.C.	4	4	0
Stockton-on-Tees Corporation	4	4	0
Sunderland Corporation	10	10	0
Thornaby-on-Tees Corporation	2	2	0
Wallsend Corporation	5	5	0
Washington U.D.C.	3	3	0
West Hartlepool Corporation	6	6	0
Whickham U.D.C.	2	2	0
Whitley Bay U.D.C.	3	3	0

Yorkshire Division

	£	s.	d.
Adwick-le-Street U.D.C.	2	2	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons	1	1	0
Bacon, N. P.	1	0	0
Batley Corporation	4	4	0
Beaumont, J. W.		10	6
Bentley-with-Arksey U.D.C. (1951)	2	2	0
(1952)	3	3	0
Berry, S. A.	1	0	0
Bingley U.D.C.	2	2	0
Bonner, J. R.		5	0
Bradford Corporation (1951)	15	15	0
(1952)	21	0	0
Bradford Civic Society (1951)	1	1	0
(1952)	2	2	0
Bray, G. & Co.	12	12	0
Bridlington Corporation	2	2	0
Brighouse Corporation	4	4	0
British Electricity Authority—Yorkshire Division	10	10	0
Brown, G. L.	2	2	0
*Carpenter, V. A.		10	6
Castleford U.D.C.	3	3	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, E.		10	6
Colne Valley U.D.C.	3	3	0
Conisbrough U.D.C.	2	2	0
Darton U.D.C.	2	2	0
Dearne U.D.C.	2	2	0
Dewsbury Corporation	5	5	0
Dodworth U.D.C.	2	2	0
Doncaster Civic Trust	2	0	0
Doncaster Corporation	4	4	0
Doncaster R.D.C.	4	4	0
Givens, W.		15	0
Goldstern, W.		10	6
Graucob, F. Ltd.	2	2	0
Halifax Corporation	5	5	0
Hall, J. A.		10	6
Harris, J.		10	6
Harrogate Corporation	3	3	0
Hemsworth R.D.C.	5	0	0
Hepton R.D.C.	2	2	0
Holdsworth, R. Y.	1	1	0
Holmes, W. C. & Co. Ltd.	10	10	0
*Holmes, W. G.	2	10	0
Holmfirth U.D.C.	2	2	0
Horbury U.D.C.	2	2	0
Horsforth U.D.C.	2	2	0
Huddersfield Corporation	10	10	0
Hull Corporation	15	15	0
Hunter, K. D.	1	0	0
Jervis, Dr. J. Johnstone	1	1	0
Keighley Corporation	2	2	0
Leeds Corporation	15	15	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		10	6
Marshall, G. C.		15	0
Meltham U.D.C.	3	3	0
Mexborough U.D.C.	2	2	0
Mirfield U.D.C.	2	2	0
Morley Corporation	3	3	0
Newton, Chambers & Co. Ltd.	25	0	0
North Eastern Gas Board	42	0	0
Ossett Corporation	2	2	0
Pontefract Corporation	2	2	0
Pudsey Corporation	3	3	0
Queensbury & Shelf U.D.C.	2	2	0
Rawmarsh U.D.C.	2	2	0
Reeder, E. C.		10	6
Rothwell U.D.C.	2	10	0
Royston U.D.C.	2	2	0
Rushton, J. L.	1	1	0
Scarborough Corporation	2	2	0
Schofield, W. B.	2	2	0
Scriven; Miss J.		10	6
*Severs, J. S.	2	0	0
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	3	3	0
Stanley (Yorks.) U.D.C.	2	2	0
Stocksbridge U.D.C.	3	3	0
Swinton U.D.C.	2	2	0
United Steel Companies Ltd.	26	5	0
Wakefield Corporation	6	6	0
Warwick, H.	1	1	0
West Riding of Yorkshire Regional Smoke Abatement Committee	2	2	0
Wilkinson, J. R.		10	6
Wombwell U.D.C.	2	2	0
Wood, F. T.		10	6
York Corporation	5	5	0
Yorkshire Electricity Board	10	10	0

West Midlands Division

	£	s.	d.
Barrow, H.		10	0
Best, J. K.		10	6
Bilston Corporation	5	5	0
Birmingham Corporation	31	10	0
Brierley Hill U.D.C.	5	5	0
British Electricity Authority—Midlands Division	10	10	0
British Reinforced Concrete Engg. Co. Ltd.	50	0	0
Burton-on-Trent Corporation	3	3	0
Cannock U.D.C.	3	3	0
Coventry Corporation	10	10	0
Danks, E. & Co. (Oldbury) Ltd.	11	0	0
Darlaston U.D.C.	2	2	0
Dawley U.D.C.	2	2	0
Dudley Corporation	4	4	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Halesowen Corporation	3	3	0
Hall, G. R.		10	6
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		10	6
Kidderminster Corporation	3	3	0
King-Farlon, Mrs. R. S.	1	1	0
Leamington Spa Corporation	3	3	0
Manger's Salt Works Ltd.	1	1	0
Meriden R.D.C.	4	4	0
Midlands Electricity Board	10	10	0
Midlands Joint Advisory Council for Smoke Abatement	5	5	0
Moore, J.		10	6
Newcastle-under-Lyme Corporation	4	4	0
Nuneaton Corporation	4	4	0
Oldbury Corporation	3	3	0
*Pringle, Dr. E.		10	6
*Pringle, Dr. J. E.	1	1	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	3	3	0
Sedgley U.D.C. (1951)	2	2	0
(1952)	3	3	0
Shrewsbury Corporation	3	3	0
Smethwick Corporation	7	7	0
Stafford Corporation	1	10	0
Staffordshire County Council	26	5	0
Stoke-on-Trent Corporation	15	15	0
Stone R.D.C.	2	2	0
Stourbridge Corporation	3	3	0
Tipton Corporation	3	3	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	10	10	0
Warwickshire County Council (1951)	15	15	0
(1952)	15	15	0
Wednesbury Corporation	3	3	0
Wellington (Salop) U.D.C.	2	2	0
West Bromwich Corporation	5	5	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	10	10	0
Wright, J.	1	10	0

East Midlands Division

	£	s.	d.
Alfreton U.D.C.	2	2	0
*Barash, Dr. M.		10	6
Basford R.D.C.	3	3	0
Beeston and Stapleford U.D.C.	4	4	0
Blackwell R.D.C.	3	3	0
Bolsover U.D.C.	3	3	0
Boston Corporation	2	2	0
British Electricity Authority—East Midlands Division	10	10	0
British Furnaces Ltd.	10	10	0
*Brown, J. A.	1	1	0
Bryan Donkin & Co. Ltd.	10	10	0
Cambridge Corporation	1	1	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	4	4	0
Chesterfield R.D.C.	5	5	0
Clarke, J. A.	1	0	0
Clarke, Dr. R. T. V.		10	6
Clowne R.D.C.	2	2	0
Coke Oven Managers' Association	5	5	0
Corby U.D.C.	2	2	0
Dearden, J.		10	6
Derby Corporation	1	1	0
Derbyshire County Council	10	10	0
Dickson, Miss D. M.	1	1	0
Earnshaw, G. H.		10	6
Eastern Electricity Board	10	10	0
East Midlands Electricity Board	10	10	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	2	2	0
Gainsborough U.D.C.	2	2	0
Great Yarmouth Corporation	4	4	0
Grimsby Corporation	7	7	0
Gurney, J.	1	1	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	4	4	0
Hucknall U.D.C.	2	2	0
Ilkeston Corporation	3	3	0
Irthlingborough U.D.C.	2	2	0
Jefferson, P.		10	6
Kettering Corporation (1951)	3	3	0
(1952)	3	3	0
King's Lynn Corporation	2	2	0
Kirkby-in-Ashfield U.D.C.	2	2	0
Leicester Corporation	15	15	0
Lewis, Mrs. A. B.	1	0	0
Lincoln Corporation	7	7	0
Long Eaton U.D.C.	3	3	0
Loughborough Corporation	4	4	0
Louth Corporation (1951)	2	2	0
(1952)	2	2	0
Lowestoft Corporation	3	3	0
Mansfield Corporation	3	3	0
Mansfield Woodhouse U.D.C.	2	2	0
Market Harborough U.D.C.	2	2	0
McHugh, F. G.		10	6
Micklethwait, R. G.		10	0
Moorhouse, Mrs. M.		5	0
Newark Corporation	2	2	0
Nottingham Corporation	35	0	0
Orr, J. H.		10	6
Peterborough Corporation	4	4	0
Ripley U.D.C.	2	2	0
Southwell R.D.C.	3	3	0
Scopes, F. V.	1	1	0
Staveley U.D.C.	2	2	0
Stewarts & Lloyds Ltd.	50	0	0
Sutton-in-Ashfield U.D.C.	3	3	0
Swadlincote District U.D.C.	3	0	0
Tosic, J.		10	0
*Turner, T. Henry		10	6
West Bridgford U.D.C.	3	3	0
Wigston U.D.C.	2	2	0
Woodcock, F. Huntly	1	0	0
Worksop Corporation	3	3	0
Worksop R.D.C.	2	2	0

South West Division

	£	s.	d.
Abercarn U.D.C.	2	2	0
Aberdare U.D.C.	3	3	0
Abertillery U.D.C.	3	3	0
Bath Corporation (1951)	4	4	0
(1952)	5	5	0
Bathavon R.D.C.	2	2	0
Bedwas & Machen U.D.C.	2	2	0
Blampied, F. C.		10	0
Bradshaw, Miss G.		5	0
Bristol Corporation	15	15	0
Bristol and District Regional Smoke Abatement Council	2	2	0
British Electricity Authority—South Wales Division	10	10	0
South Western Division	10	10	0
Buzzacott, J. O.	2	2	0
Caerphilly U.D.C.	2	2	0
Campbell, Dr. A. F.	2	2	0
Cardiff Corporation	10	10	0

	£	s.	d.
Cardiff R.D.C.	3	3	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	4	4	0
Coulthurst, Mrs. A.		10	6
Crook, S. C.	1	1	0
Cwmbran U.D.C.	2	2	0
Ebbw Vale U.D.C.	5	5	0
Fry, Miss A.		10	6
Gellygaer U.D.C.	3	3	0
Gloucester Corporation	4	4	0
Kingswood U.D.C.	3	3	0
Llantrisant and Llantwit Fadre R.D.C.	3	3	0
Morgan, D. & Sons	1	1	0
Mountain Ash U.D.C.	3	3	0
Neath Corporation	4	4	0
Newport Corporation	7	17	6
Pontardawe R.D.C.	3	3	0
Pontypool U.D.C.	3	3	0
Pontypridd U.D.C.	3	3	0
Poole Corporation	2	2	0
Portishead U.D.C.	2	2	0
Port Talbot Corporation	3	3	0
*Rogers, P.	2	2	0
Seale, Mrs. I. L.		10	6
Shaftesbury, Lady		10	0
Shawyer, A. F.	1	0	0
Silburn, Mrs. E.	1	10	6
Sodbury R.D.C.	3	3	0
South Wales Electricity Board	10	10	0
South Western Electricity Board	21	0	0
South Western Gas Board	36	15	0
Swansea Corporation	3	3	0
Swindon Corporation	4	4	0
Thornbury R.D.C.	2	2	0
Tredegar U.D.C.	2	2	0
Wales Gas Board	21	0	0
Warmley R.D.C.	2	2	0
Weston-super-Mare Corporation	2	2	0
Women's Gas Council		10	0

South East Division

	£	s.	d.
Acton Corporation	4	4	0
Acworth, A. W.	1	0	0
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0
Ascot Gas Water Heaters Ltd.	10	10	0
Associated Coal and Wharf Companies Ltd.	5	5	0
Atkinson, Mrs. M.	1	0	0
Aylesbury Corporation	2	2	0
Bakelite Ltd.	3	3	0
Banbury Corporation	3	3	0
Barber, S. S.		10	6
Barking Corporation	10	10	0
Barnes Corporation	3	3	0
Battersea Corporation	10	10	0
Beard, J. R.	1	1	0
Bedfordshire County Council	21	0	0
Bennett, M. J.	1	10	0
Bermondsey Corporation	4	4	0
Berry, Dr. J. A.	1	1	0
Bexley Corporation	7	7	0
Bligh, Mrs. M. F.		12	6
*Bond, Miss E. F.		10	6
Boult, Miss O.	2	2	0
Bournemouth Corporation	2	2	0
Brentford and Chiswick Corporation	4	4	0
Brighton Corporation	10	10	0
British Electrical Development Assn.	125	0	0
British Electricity Authority	206	0	0
,, Eastern Division	10	10	0
,, London Division	10	10	0
,, South Eastern Division	10	10	0
,, Southern Division	10	10	0
British Iron and Steel Federation	105	0	0
British Medical Association	10	10	0
Browne, Dr. D. Warren	1	1	0
Buist, Commander C.		10	6
Cable Makers' Association	10	10	0
Camberwell Corporation	10	10	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	2	2	0
Charrington, Gardner, Lockett & Co. Ltd.	5	5	0
Chatham Corporation	3	3	0
Chelsea Corporation	3	3	0
Chislehurst and Sidcup U.D.C.	4	4	0
Clarke, D. K.		10	6
Clinch, H. G.	1	1	0
Coal Utilisation Council	10	10	0
Coalite & Chemical Products Ltd.	26	5	0
Collier, Dr. W. A. L.		10	6
Cooke, B.		10	6
Cort, R. & Son Ltd.	20	0	0
Crayford U.D.C.	2	2	0
Crouch End Chapel		16	2
Dagenham Corporation	3	3	0
Dartford Corporation	4	4	0
Dartford R.D.C.	4	4	0
Dunstable Corporation	2	2	0
Ealing Corporation	2	2	0
Eastern Gas Board	42	0	0
East Ham Corporation	10	10	0
Eastleigh Corporation	3	3	0
East Sussex County Council	5	5	0
Edmonton Corporation	5	5	0
Edwards, Dr. C.		10	6
Electrical Association for Women	10	10	0
*Elsworthy, J. G.	1	11	6
Erith Corporation	3	3	0
Eton R.D.C.	3	3	0
Fareham U.D.C.	3	3	0
Farnborough U.D.C.	2	2	0
Feltham U.D.C.	3	3	0
Finchley Corporation	4	4	0
Finsbury Corporation	4	4	0
*Foss, Mrs. A.		10	6
Fox, J.	1	1	0
Fry, Miss A. R.	1	0	0
Fry, Miss M.	1	0	0
Fulham Corporation (1951)	10	10	0
(1952)	15	15	0
Gamlen, R. E.	1	1	0
*Gandy, Miss R. L.	1	1	0
Gas Council	250	0	0
General Electric Co. Ltd.	10	10	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	1	1	0
Gosport Corporation	1	1	0
Grace, Mrs. E.		10	6
Gravesend Corporation	3	3	0
Greenwich Corporation	3	3	0
Greenwood, T. A. S.		10	0
Guildford Corporation	3	3	0
Gummer, R. H.	1	1	0
Hackney Corporation	10	10	0
Hales, J. S.	1	1	0
*Hall, C. A.	1	5	0
*Hampson, G. B.		10	6
Hampstead Corporation	5	5	0
Harrold Leather Mfg. Co. Ltd.	1	1	0
Harrow U.D.C.	10	10	0
Harwich Protection Association	1	1	0
Heston & Isleworth Corporation	5	5	0
Hitchin U.D.C.	2	2	0
Hodgkinson, J. (Salford) Ltd.	5	5	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.		10	6
Horder, Lord	1	1	0
Hornchurch U.D.C.	4	4	0
Hurseal Ltd.	5	5	0
*Hutton, Dr. K. B.		10	6
Hyland, A.	1	0	0
Ideal Boilers & Radiators Ltd.	5	5	0
Institute of Fuel	15	15	0
Institution of Electrical Engineers	10	10	0
Institution of Heating and Ventilating Engineers	10	10	0
Johnson, W. E.		10	6

	£	s.	d.
Jones, Griffith		10	6
Kensington Corporation	1	1	0
Keynes, Mrs. G.	1	0	0
Kingston-upon-Thames Corporation	3	3	0
Lambeth Corporation	1	1	0
Lee, S. A.	1	5	0
*Lessing, Dr. R.	1	1	0
Leveson Gower, Miss V.		15	0
Leyton Corporation	2	2	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S.	1	0	0
London Electricity Board	10	10	0
London and Home Counties Smoke Abatement Advisory Council	2	2	0
Low Temperature Coal Distillers' Association	5	5	0
Luton Corporation	2	2	0
*McGhie, A. T. S.		10	6
*McLachlan, T.	1	1	0
Maidenhead Corporation	3	3	0
Malden and Coombe Corporation	3	3	0
Margolis, A. E.		10	6
Markham, Major S. F.	1	1	0
Mathias, Mrs. F. V. L.		10	6
Mathias, J.	1	1	0
Matthews, Mrs. M.		10	6
Melland, B.	1	10	0
Merton & Morden U.D.C.	5	5	0
Mitcham Corporation	2	2	0
*Munro, Mrs. M. A.	1	1	0
National Coal Board	157	10	0
Nonhebel, G.	1	1	0
Northfleet U.D.C.	2	2	0
North Thames Gas Board (1951)	105	0	0
(1952)	105	0	0
Ongar R.D.C.	2	2	0
Orpington U.D.C.	4	4	0
Oxford Corporation	10	10	0
Paddington Corporation	5	5	0
Parkinson, B. R.		15	0
Parmenter, Mrs. D. M.		10	6
Parry, M.		10	6
Pollard, R. S. W.		10	6
Pollitzer, E.	3	3	0
Portsmouth Corporation	5	5	0
Radiation Ltd.	10	10	0
Radiovisor Parent Ltd.	5	5	0
Railway Executive	150	0	0
Rathbone, P. R.		10	6
Reading Corporation	2	2	0
Reed, J. B.	1	4	0
Rheostatic Co. Ltd.	1	1	0
Rhondda, Ladv		10	6
Richards, Dr. H.		10	6
*Roberts, J. M.		15	0
*Robinson, Mrs. E.	2	2	0
Rochester Corporation	3	3	0
*Roper, Captain R.		10	6
Ryan, J.		10	6
St. Albans Corporation	3	3	0
St. Marylebone Corporation	5	5	0
St. Pancras Corporation	5	5	0
Samuel, Viscount and Lady	1	1	0
*Sanger, Mrs. A. D.	1	0	0
Sanitary Inspectors' Association	12	12	0
Sewards-Shaw, Capt. K. E.		10	6
Shoreditch Corporation	3	3	0
Simon, Professor F. E.		10	6
Sittingbourne & Milton U.D.C.	2	2	0
Slough Corporation	3	3	0
Smith, Sir Ernest	2	2	0
*Smith, D. V. H.	2	2	0
Smith & Wellstood Ltd.	1	1	0
Snow, C. N.	5	0	0
Solid Smokeless Fuels Federation	52	10	0
Southall Corporation	3	3	0
Southampton Corporation	1	1	0
South Eastern Electricity Board	10	10	0
South Eastern Gas Board (1951)	78	15	0
(1952)	105	0	0
Southern Electricity Board	10	10	0
Southern Gas Board	36	15	0
Southwark Corporation	7	7	0
Southwell, W. E.		10	6
Southwick U.D.C.	2	2	0
Stepney Corporation	5	5	0
Stoke Newington Corporation	3	3	0
Sturtevant Engg. Co. Ltd.	2	2	0
Sutton and Cheam Corporation	5	5	0
Swift, S.	1	1	0
Thackeray, Mrs. L. E.		5	0
Thurrock U.D.C.	4	4	0
Tiranti, A.		5	0
Tottenham Corporation	10	10	0
Trianco Ltd.	5	5	0
Uxbridge U.D.C.	3	3	0
Des Voeux, Mrs. M. A.	5	5	0
*Wadham, Miss D.	1	0	0
Walthamstow Corporation	10	10	0
Wanstead & Woodford Corporation	4	4	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	4	4	0
*Watkins, D. V.		10	6
Wembley Corporation	10	10	0
West Ham Corporation	1	1	0
Westminster City Council	15	15	0
White, Dr. H. D. J.		10	6
Wicksteed, J. H.		10	0
Willesden Corporation	10	10	0
Wimbledon Corporation	4	4	0
Windsor Corporation	2	2	0
Windsor R.D.C.	2	2	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	5	5	0
Women's Gas Federation	15	15	0
Woodall-Duckham Vertical Retort Co. Ltd.	10	10	0
Wood Green Corporation	2	2	0

Overseas Subscriptions

Beaupre, B. (Canada)	1	0	11
Elex, S. A. (Switzerland)	3	0	0
Griebling, R. T. (U.S.A.)	*Exchange membership*		
Meddows, J. C. (New South Wales)	1	1	0
Mills, D. V. (Sydney, Australia)		10	6
Reif, A. E. (U.S.A.)	1	1	0
Vereeniging Town Council (S.A.)	1	1	0
Subscriptions and donations under 5s.		12	6
Total	£5,437	14	7

General Section

THE LAW RELATING TO SMOKE, ETC.

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (Smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 36). Briefly, the expression "smoke" includes "soot, ash, grit and gritty particles." Provisions (s.101) that require a nuisance to be proved or enable a "best practicable means" defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that "interferes with or obstructs" the efficient working of mines or metallurgical processes.

Action may be taken with regard to smoke under common law procedure and can be used to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase "black smoke" is not used.

The smoke abatement legislation is administered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

Recent Local Legislation

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of "prior approval" of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this will be followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows: those also including smokeless zone clauses being marked "*S.Z.*":

Manchester Corporation Act, 1946. *S.Z.*
City of London (Various Powers) Act, 1946
Preston Corporation Act, 1947.
Dudley ,, ,, 1947.
Salford ,, ,, 1947. *S.Z.*
Paisley Corporation Order Confirmation Act, 1947.
Coventry Corporation Act, 1948. *S.Z.*
Darwen ,, ,, 1948.
Birmingham ,, ,, 1948.
St. Helens ,, ,, 1948.
Smethwick ,, ,, 1948.
Rochdale ,, ,, 1948. *S.Z.*
Brighton ,, ,, 1948.
Bradford ,, ,, 1949. *S.Z.*
Bolton ,, ,, 1949. *S.Z.*
Urmston ,, ,, 1949. *S.Z.*
Crewe ,, ,, 1949. *S.Z.*
Slough ,, ,, 1949.
W. Bromwich ,, ,, 1949.
Fife C.C. Order Confirmation Act, 1949.
Leyton Corporation Act, 1950.
Wolverhampton Corporation Act, 1950. *S.Z.*
Kirkcaldy Burgh Extension, etc., Order Confirmation Act, 1950.
Edinburgh Corporation Order Confirmation Act, 1950. *S.Z.*
Worcester Corporation Act, 1951.
Sunderland ,, ,, 1951. *S.Z.*
Sutton and Cheam ,, ,, 1951.
Swindon ,, ,, 1951. *SZ* only.
Notts. C. Council Act, 1951.
Airdrie Corporation Order Confirmation Act, 1951.
Essex C. Council Act, 1952.
Fareham U.D. Council Act, 1952.
Kingston-upon-Hull Corporation Act, 1952.
Leamington Corporation Act, 1952.
Nottingham ,, ,, 1952.
Tottenham ,, ,, 1952.
Preston ,, ,, 1952. *S.Z.* only.
Greenock Corporation Order Confirmation Act, 1952.

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made in 1928, 1935, 1939 and 1950. The Orders, however, do not apply to Scotland. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to the atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an Inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure, penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the Inspectorate. (*See also Directory*).

THE MINISTRY OF FUEL AND POWER

The main function of the Fuel Efficiency Branch of the Ministry of Fuel and Power is the promotion of efficiency in the use of fuel and power and since this is necessarily closely associated with smoke abatement the Ministry takes an active and practical part in this work.

The technical services of the Branch are carried out by a staff of experienced fuel engineers and fuel engineering assistants in each Region who, among other duties, are available to assist in dealing with problems of excessive smoke and grit emission.

The Ministry also encourages the provision of City and Guilds courses in Boilerhouse Practice (preliminary, intermediate and final grade), Combustion Engineering, and other subjects conducive to fuel efficiency and thus to smoke abatement.

Inquiries should be addressed to the appropriate Regional Fuel Engineer at the address given in the Directory.

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes three main lines of attack:

(i) a study of the properties and behaviour of atmospheric pollution including the systematic measurement of the amounts of pollution present in the air in various areas throughout the country.

(ii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iii) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December, 1952, regular observations of atmospheric pollution were being made by about 150 local authorities and other co-operating bodies, involving the use of more than 1,200 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. One such process, in which the oxides of sulphur are recovered as a saleable by-product, is undergoing investigation in a pilot-scale plant at the Fuel Research Station.

Local authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1950 some 120 bodies had appointed representatives to serve on this Conference.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to ten per cent. of the fuel, has been developed and is now being manufactured commercially. In the same field, research is now being directed towards the development of smoke eliminators for vertical boilers and hand-fired, forced-draught boilers of the Lancashire type.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the Coal Utilization Council's List of Recommended Domestic Solid Fuel Appliances which is circulated for the guidance of local authorities and is available to the general public.

DOMESTIC FUEL POLICY

The Simon Report

In March, 1946, the Fuel and Power Advisory Council, the Chairman of which was Lord Simon of Wythenshawe, presented a report on "Domestic Fuel Policy" to the Minister of Fuel and Power. This was, and is, an important document for the smoke abatement movement, as the policy recommended was largely identical with that needed for the abolition of household smoke.

The Committee came to the conclusion that "our coal is used for domestic heating with a degree of inefficiency which is not, so far as we can ascertain, even approached in any other country in the world." For reference some of the Committee's recommendations relating particularly to smoke prevention, are

quoted (the reference after each paragraph being to the section of the "Summary of Objectives and Recommendations," as given on pages 32-35 of the Report):

"*National Fuel Economy*—To ensure that all fuels shall be used in the most efficient and economical manner with due regard to the need for conserving the national reserves of coal. (1c)

"*Smoke abatement*—To abolish the pollution of the atmosphere from domestic sources by soot and tar, and to reduce to the lowest practicable limit the emission of sulphurous gases. (1d)

"The Government should encourage the production of improved heating appliances for all fuels and for all domestic purposes. It is particularly important to develop multi-fuel appliances to burn efficiently and as smokelessly as possible both bituminous coal and smokeless solid fuels. (2a)

"Minimum standards should be established as soon as possible for all leading types of appliances. (2b)

"The manufacture and sale of new appliances falling below approved standards should be prohibited as soon as possible. (2c)

"The Government should take steps to secure the mass production of standardized domestic fuel appliances. (2g)

"In subsidized houses the Government should make the use of approved solid fuel appliances a condition of subsidy, and should consider the advisability of a free issue of such appliances as part of the subsidy. (2h)

"Old fashioned coal grates in existing houses should be replaced wherever possible by new approved appliances. Subsidies should be granted by the Government to encourage widespread and rapid action on these lines. (2j)

"Central heating plants should be accepted as the main means of heating blocks of flats or single large houses. (3a)

"The Government should endeavour to ensure that the available supplies of smokeless solid fuel should be burnt in individual houses, and that suitable types of central heating and district heating plants should burn bituminous coal. (3b)

"It should be the policy of the Government to replace bituminous coal in all single house appliances by smokeless solid fuel as rapidly as adequate supplies can be provided at a reasonable price (4d).

"The Government should encourage the largest practicable increase in the production of smokeless solid fuels suitable for domestic purposes. (5a)

"The necessary legislation should be passed to enable smokeless zones to be established, and a few such zones should be declared, mainly for experimental purposes. (10)

"It should be the target of a national domestic fuel policy to secure that the 50 million tons of bituminous coal now burnt with a working efficiency of 20 per cent. should be replaced in 20 years by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40 per cent. . . . ." (11)

Of these recommendations progress has been made with respect to 2a, 2b, 2g, 2h and 10.

Attention may be drawn to action taken by the Ministry of Health with respect to 2h. Circular 170/48, to Housing Authorities, dated 11th November, 1948, stated:

"Having regard to the continued importance of economy in fuel and the permanent need of cheaper and more efficient domestic heating, the Minister must in these circumstances ask all housing authorities to review present practice and in all future housing schemes to specify only the types of solid fuel heater contained in the lists of approved appliances circulated from time to time."

NATIONAL FUEL POLICY

The Ridley Report

The Committee appointed by the Ministry of Fuel and Power, with Lord Ridley as Chairman, published its report in September, 1952, on "Policy for the Use of Fuel and Power Resources." (H.M.S.O., 6s. 6d.). A review of the general findings of the Committee appeared in *Smokeless Air*, Winter, 1952, in which reference was made to the attention given to smoke abatement. An appendix of the Report is devoted to this subject, and in view of its lasting importance is reprinted in full below.

Appendix IV

Smoke Abatement

1. Chapter I, paragraph 4 states that " the best use of fuel and power is determined by the value of the resources consumed to provide the supply, the social costs to the community of producing or using it, and the value to the individual consumer of the specific fuel and power service."

2. One heavy social cost to the community is the smoke pollution usually produced when raw coal is burnt inefficiently. It is impossible to measure all this cost in money. Estimates have been cited from time to time for parts of it (for instance, in the Egerton Report (Appendix A 4, 5)). In real terms it is certainly enormous as every-day observation in our large towns and cities shows—most clearly to those who know conditions abroad, where less coal is burnt raw in inefficient conditions. Among the social costs are the loss of sunlight and the harm to the health of the citizens, the reduction in the amenities of town life, the damage to buildings and textile fabrics, the extra costs of painting, washing, and laundry, and the loss of food production which results from the smoke deposit in the countryside around the towns. These are only some of the main losses which the community endures through smoke.

3. But apart from the loss which the community suffers from smoke pollution, there is the inefficiency of which smoke is the visible symptom.

4. The main sources of smoke pollution in the United Kingdom are:

(1) The millions of households which use raw coal burnt in old-fashioned open grates as the main source of heat comfort. There are perhaps 12 million such open fires in regular use, together burning more than 30 million tons of coal a year—and producing a million tons of smoke. Thus the townsman pays heavily for smoke, both directly as a coal consumer, and indirectly as a citizen living in dirty air.

(2) Smaller industrial boilers and furnaces burning raw coal.

(3) Steam railway locomotives.

5. In the Report proposals have been made for increasing the efficiency of fuel use in each of these three main smoke-producing uses:

(1) Domestic use. The Committee have recommended in Chapter V:
   (*a*) The development of more efficient types of open fire which will burn coal with less smoke and greater efficiency even than the standard improved fires now coming into popular use.
   (*b*) The use of more gas domestically during peak hours on the electricity supply system, with correspondingly greater supplies of coke.

(2) Industrial boilers and furnaces. The Committee have recommended in Chapter VI:
   (*a*) The expansion of the fuel efficiency advisory service.
   (*b*) Financial incentives to firms for installing fuel efficiency equipment.
   (*c*) The requirement of prior approval by the Government for the heating installations in new industrial and commercial buildings.
   (*d*) More schemes for the training of stokers in the efficient and smokeless firing of boilers and furnaces.
   Eliminating smoke does not necessarily mean attaining fuel efficiency; in some conditions, smoke can be avoided by reducing boiler efficiency, for instance by admitting additional air. Happily, however, the efficient use of fuel does mean its smokeless use.

(3) Steam railway locomotives. There appear to be no practicable methods of making the standard steam railway locomotive fuel efficient and smokeless; progress here must come through the switch to other methods of traction which the Committee have recommended in Chapter VI on the score of fuel efficiency, but it cannot be done quickly because of the huge investment required.

6. All the above methods are means to increase fuel efficiency and incidentally to reduce smoke pollution. The Committee have considered also measures primarily for reducing smoke pollution. They are:

(1) The wider use of the low temperature carbonization process. This method produces solid smokeless fuel more acceptable to most householders and more easily burnable than gasworks coke in most existing grates; on these grounds the Committee have recommended in Chapter V that its extension should be encouraged.

(2) The more general adoption of smoke abatement bye-laws by local authorities. Under the Public Health Act, 1936, local authorities may enact bye-laws intended to check smoke pollution from most sources other than the domestic chimney; about one in five of the urban authorities have done so. It is doubtful whether the more general adoption of the bye-laws would, in present conditions, make any great contribution to reducing smoke pollution in our towns. What is important is that consumers should be able to get the sorts of fuels which can be burnt efficiently in the equipment they have, and, even more important, that fuel advisory service should be readily available to them. When these conditions obtain, there may be a case for the more general adoption of bye-laws, possibly with some stiffening of the penalties and widening of their scope. Until then, however, there is danger that more general and stiffer legislation against smoke might actually reduce fuel efficiency, as firms sought to avoid prosecution by using excess air in their appliances.

(3) The establishment of more smokeless zones. The Simon Report recommended that legislation should be passed to enable urban authorities to define parts of their areas where smoke emission would be prohibited. Since 1946 fifteen local authorities have been granted powers in private legislation to declare smokeless zones, and two smokeless zones—at Coventry and Manchester—are already in existence. Further progress in the establishment of smokeless zones depends on having enough smokeless fuel and suitable appliances. As they become available, there is, in the Committee's view, a good case for more widespread declaration of smokeless zones, in the cause both of reducing the social costs of smoke pollution and improving fuel efficiency.

THE LONDON SMOKE FOG, DECEMBER, 1952

Fuller accounts of the London fog disaster that have so far been published will be found in an article on the mortality figures by Dr. W. P. D. Logan, Chief Medical Statistician, General Register Office, in the *Lancet*, 14th February, 1953; an article on the meteorological aspects by C. K. M. Douglas and Dr. K. A. Stewart in the *Meteorological Magazine*, March, 1953, and a survey of all the principal aspects in *Smokeless Air*, Spring, 1953.

In view of the unusual severity of the event the following summary of some of the principal data at present available is given below for reference purposes.

The fog developed on Friday, 5th December and continued until 8th December. It was marked by a period of virtually complete calm and for the low height, 200 to 500 feet, of the temperature inversion, beneath which the fog and pollution was concentrated.

Observations at County Hall showed a rise in average daily smoke concentration (mgm. per c. metre) from 0.49 on 3rd December to 4.46 on 7th and 8th December; and a rise in sulphur dioxide (parts per million) from 0.144 to 1.339. Air filters at the National Gallery became clogged during 24 hours of the fog at the rate of 26 times the normal, and in one period of four hours at a rate of 54 times the normal.

The number of deaths caused by the fog, during the two weeks following it, are given by Dr. Logan (op. cit.) as about 4,000 for Greater London. In the London Administrative County only, during the week following the fog, compared with the previous week, deaths from bronchitis rose from 121 to 872, and from diseases of the heart and circulatory system from 318 to 801. Nearly all age groups were affected, particularly those aged 45 and upwards. During the period the deaths in other parts of the country showed no significant change. In the London County area the death rate, per million population, during the week following the fog was exceeded only in 1866 (cholera), 1873 (fog) and 1918 (influenza), but the *excess* of the rate over the normal for the period and season was greater after the 1952 fog than any occasion other than 1918. The excess over the normal in 1866 was 426; in 1873, 243; in 1918, 785; and in 1952, 445.

DIRECTORY OF ORGANIZATIONS

Concerned with Air Pollution and Related Subjects

ALKALI INSPECTORATE:

Chief Inspector, Ministry of Housing and Local Government, Whitehall, S.W.1.

Deputy Chief Inspector, do.

District Inspectors, District I, 76 Elton Road, Darlington.
District II, 38 College Road North, Liverpool, 23.
District III, 30 Montgomery Road, Sheffield, 7.
District IV, 40 Kingsdown Rd., Senneleys Park, Birmingham, 31.
District V, 41 Henleaze Avenue, Westbury-on-Trym, Bristol.
District VI, 137 Stanwell Road, Ashford, Middlesex.

Chief Inspector for Scotland—Department of Health for Scotland, St. Andrew's House, Edinburgh, 1.

AMENITIES COUNCIL, NATIONAL, 34 Great Ormond Street, London, W.C.1.
AMERICA, AIR POLLUTION AND SMOKE PREVENTION ASSOCIATION OF, 4400 Fifth Avenue, Pittsburgh, 13, Pa.
AMERICA, OFFICE OF AIR AND STREAM POLLUTION, BUREAU OF MINES, U.S. Department of the Interior, Washington, 25, D.C.
ARCHITECTS, ROYAL INSTITUTE OF BRITISH, 66 Portland Place, London, W.1.
ARCHITECTS AND SURVEYORS, INCORPORATED ASSOCIATION OF, 75 Eaton Place, London, S.W.1.
ARTS, ROYAL SOCIETY OF, 6 John Adam Street, London, W.C.2.

BRISTOL AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Public Health Department, 48 Queen Square, Bristol, 1.
BRITISH MEDICAL ASSOCIATION, B.M.A. House, Tavistock Square, London, W.C.1.
BRITISH STANDARDS INSTITUTION, 28 Victoria Street, London, S.W.1.
BUILDING CENTRE, 26 Store Street, London, W.C.1.
BUILDING RESEARCH STATION, Bucknall's Lane, Garston, nr. Watford, Herts.

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S.W.1.
CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1.
CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7.
CIVIC SOCIETIES, CENTRAL COUNCIL OF, 82 Pall Mall, London, S.W.1.
COAL BOARD, NATIONAL, Hobart House, Grosvenor Place, London, S.W.1.
COAL UTILIZATION COUNCIL, 3 Upper Belgrave Street, London, S.W.1.
COAL UTILIZATION RESEARCH ASSOCIATION, BRITISH, Randalls Road, Leatherhead, Surrey.
COKE OVENS MANAGERS' ASSOCIATION, 1 Cliff Street, Mexborough, Yorks.
COKE RESEARCH ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1.
COKING INDUSTRY ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1.
COMBUSTION ENGINEERING ASSOCIATION, 6 Duke Street, St. James's, London, S.W.1.
COUNTY BOROUGHS' ASSOCIATION, Town Hall, Oxford.
COUNTY COUNCILS' ASSOCIATION, 84 Eccleston Square, London, S.W.1.
COUNTY COUNCILS IN SCOTLAND, ASSOCIATION OF, 3 Forres Street, Edinburgh.

ELECTRICAL AND ALLIED INDUSTRIES RESEARCH ASSOCIATION, BRITISH, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. Laboratories, Wadsworth Road, Perivale, Middlesex.
ELECTRICITY AUTHORITY, BRITISH, British Electricity House, Great Portland Street, London, W.1.
ELECTRICAL DEVELOPMENT ASSOCIATION, BRITISH, 2 Savoy Hill, London, W.C.2.
ELECTRICAL ENGINEERS, INSTITUTION OF, Savoy Place, Victoria Embankment, London, W.C.2.

FUEL, INSTITUTE OF, 18 Devonshire Street, London, W.1.

FUEL AND POWER, MINISTRY OF, Thames House South, Millbank, London, S.W.1.

Chief Scientists' Division

Fuel Efficiency Branch: Queen Anne's Chambers, Dean Farrar Street, London, S.W.1.

Regional Offices:

Scotland	24/6 Douglas Crescent, Edinburgh, 12.
Northern	Government Buildings, Kenton Bar, Newcastle-upon-Tyne, 3.
North Western	Burton Road, West Didsbury, Manchester, 20.
North Eastern	Century House, South Parade, Leeds, 1.
North Midland	Block 7, Government Buildings, Chalfont Drive, Nottingham.
Midland	63 Hagley Road West, Birmingham, 17.
Wales	27 Newport Road, Cardiff.
South Western	Flowers Hill, Brislington, Bristol, 4.
Southern	" Whiteknights," Earley, Reading.
Eastern	Shaftesbury Road, Brooklands Avenue, Cambridge.
London	Mill House, 87/9 Shaftesbury Avenue, London, W.1.
South Eastern	Government Buildings, Forest Road, Hawkenbury, Tunbridge Wells, Kent.

FUEL RESEARCH STATION, River Way, Greenwich, London, S.E.10.
(Scottish Branch: Thorntonhall, nr. Glasgow).

GAS COUNCIL, Gas Industry House, 1 Grosvenor Place, London, S.W.1.

GAS ENGINEERS, INSTITUTION OF, 17 Grosvenor Crescent, London, S.W.1.

GAS INDUSTRIES, SOCIETY OF BRITISH, 56 Victoria Street, London, S.W.1.

GEORGIAN GROUP, 27 Grosvenor Place, London, S.W.1.

HEALTH EDUCATION, CENTRAL COUNCIL FOR, Tavistock House, Tavistock Square, London, W.C.1.

HEATING AND VENTILATING ENGINEERS, INSTITUTION OF, 75 Eaton Place, London, S.W.1.

HOUSING AND LOCAL GOVERNMENT, MINISTRY OF, Whitehall, London, S.W.1.
(see also Alkali Inspectorate)

HOUSING AND TOWN PLANNING COUNCIL, NATIONAL, 42 Devonshire Street, London, W.1.

HOUSING CENTRE, 13 Suffolk Street, London, S.W.1.

HOUSING INCORPORATED, INSTITUTE OF, 359 Strand, London, W.C.2.

IRON AND STEEL FEDERATION, BRITISH, Steel House, Tothill Street, London, S.W.1.

IRON AND STEEL RESEARCH ASSOCIATION, BRITISH, 11 Park Lane, London, W.1.

IRON FOUNDERS' ASSOCIATION, BRITISH, 30 St. James's Square, London, S.W.1.

LONDON AND HOME COUNTIES SMOKE ABATEMENT ADVISORY COUNCIL, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1.

LOW TEMPERATURE COAL DISTILLERS' ASSOCIATION OF GREAT BRITAIN LTD., P.O. Box No. 21, Chesterfield, Derbyshire.

MANCHESTER AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Town Hall, Manchester, 2.

MECHANICAL ENGINEERS, INSTITUTION OF, Storey's Gate, London, S.W.1.

MEDICAL OFFICERS OF HEALTH, SOCIETY OF, Tavistock House South, Tavistock Square, London, W.C.1.

METEOROLOGICAL SOCIETY, ROYAL, 49 Cromwell Road, London, S.W.7.

METROPOLITAN BOROUGHS' STANDING JOINT COMMITTEE, Westminster City Hall, London, W.C.2.

MIDLANDS JOINT ADVISORY COUNCIL FOR THE ABATEMENT OF SMOKE AND ATMOSPHERIC POLLUTION, Public Health Department, Council House, Birmingham, 3.

Municipal and County Engineers, Institution of, 84 Eccleston Square, London, S.W.1.
Municipal Corporations, Association of, Victoria Station House, London, S.W.1

National Trust for Places of Historic Interest or Natural Beauty, 42 Queen Anne's Gate, London, S.W.1.

Parliamentary and Scientific Committee, 31 Palace Street, London, S.W.1.
Public Health and Hygiene, Royal Institute of, 28 Portland Place, London, W.1.
Preservation of Rural England, Council for the, 4 Hobart Place, London, S.W.1.
Protection of Ancient Buildings, Society for the, 55 Great Ormond Street, London, W.C.1.

Royal Burghs of Scotland, Convention of the, 51 Castle Street, Edinburgh.
Royal Institution of Great Britain, 21 Albemarle Street, London, W.1.
Rural District Councils' Association, 191/7 St. Stephen's House, London, S.W.1.

Sanitary Association of Scotland, Royal, 185 St. Vincent Street, Glasgow.
Sanitary Engineers, Institution of, 118 Victoria Street, London, S.W.1.
Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1.
Sanitary Institute, Royal, 90 Buckingham Palace Road, London, S.W.1.
Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1; *see also* Building Research Station, Fuel Research Station.
Scottish Counties of Cities Association, City Chambers, Edinburgh.
Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield.
Smoke Abatement Society, National
Central Offices: Chandos House, Buckingham Gate, London, S.W.1.
East Midlands Division: Sanitary Inspectors' Office, 50 Shakespeare St., Nottingham.
North East Division: Sanitary Department, Town Hall, Ashington.
North West Division: Health Department, Town Hall, Manchester, 2.
Scottish Division, City Chambers, Glasgow.
West Midlands Division: Public Health Department, 67 Broad Street, Birmingham, 3.
Yorkshire Division: Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1.
Social Service, National Council of, 26 Bedford Square, London, W.C.1.
Solid Smokeless Fuels Federation, 1 Grosvenor Place, London, S.W.1.
Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1.
Stationery Office, Her Majesty's, 421 Oxford Street, London, W.1.

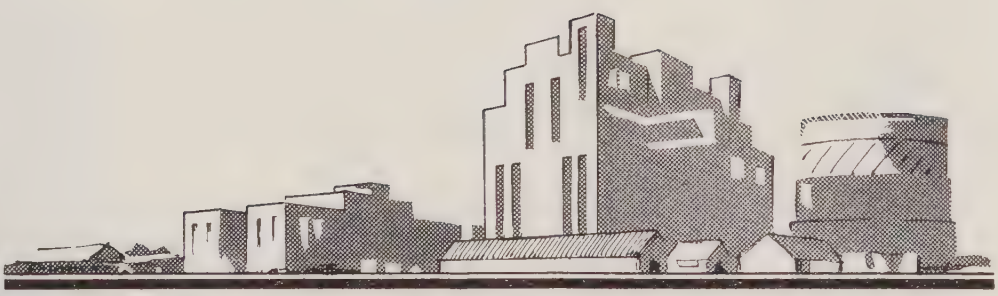
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AIR POLLUTION AND PLANT GROWTH. J. K. A. Bleasdale. *Smokeless Air*, Summer 1952, **22**, 154-157.

ALKALI, ETC. WORKS. *88th Annual Report.* H.M.S.O. 1952.

CONSULTATIVE ADVISORY COMMITTEES IN LANCASHIRE. Alderman E. Hanley. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 21-25.

DAMAGE TO STRUCTURES BY ATMOSPHERIC POLLUTION. T. Henry Turner. *Smokeless Air*, Autumn 1952, **23**, 22-26.

EFFECT OF ATMOSPHERIC POLLUTION ON FOREST TREES IN GREAT BRITAIN. T. R. Peace. *Smokeless Air*, Autumn 1952, **23**, 12-16.

ELECTRIC TRACTION AND SMOKE ABATEMENT. *Smokeless Air*, Spring 1952, **22**, 126-128.

FUEL RESEARCH 1951. H.M.S.O. 1952.

GRIT AND DUST COLLECTION. J. C. Cleeves. *Smokeless Air*, Summer 1952, **22**, 173-178.

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POLICY FOR THE USE OF FUEL AND POWER RESOURCES. H.M.S.O. 1952.

POLLUTION PROBLEMS OF THE IRON AND STEEL INDUSTRY. J. R. Sarjant. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 48-55.

PRIOR APPROVAL. J. Goodfellow. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 26-28.

THE REMOVAL OF OXIDES OF SULPHUR FROM FLUE GASES. R. Llewellyn Rees. Mtg. Inst. of Fuel, December 1952.

REPORT FROM THE U.S.A. Henry Burns. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 20-21.

REVIEW OF THE FUEL RESEARCH STATION'S INVESTIGATION OF ATMOSPHERIC POLLUTION. Dr. E. T. Wilkins. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 29-32.

SMOKE AND THE LAW. W. R. Hornby Steer. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 10-16.

SMOKELESS FUEL IN BRITAIN. G. E. Foxwell. *Smokeless Air*, Apring 1952, **22** 104-109.

SMOKELESS ZONES. Arnold Marsh. Med. Off. August 1952, **88**, 51-54.

SMOKELESS ZONES AND OTHER METHODS IN THE PREVENTION OF DOMESTIC SMOKE. Dr. J. L. Burn. *N.S.A.S. Proc. Portsmouth Conf.* 1952, 32-35.

U.S.A. Conference and Other Reports Received

AIR POLLUTION. *Proceedings of the United States Technical Conference on Air Pollution.* September 1951. Published by McGraw Hill Book Co., 1952.

AIR POLLUTION AND SMOKE PREVENTION ASSOCIATION OF AMERICA. 45th Annual Meeting, Cleveland, Ohio. June 1952.

EPIDEMIOLOGY AND SOCIAL SIGNIFICANCE OF ATMOSPHERIC SMOKE POLLUTION. J. C. McDonald, Philip Drinker and John E. Gordon. *Amer. J. Med. Sci.* March 1951 **221**, 325-342.

METEOROLOGICAL MONOGRAPH ON ATMOSPHERIC POLLUTION. American Meteorological Society. November 1951.

NATIONAL AIR POLLUTION SYMPOSIUM, STANFORD RESEARCH INSTITUTE. May 1952.

ATMOSPHERIC CONTAMINATION AND PURIFICATION. American Chemical Society.

SYMPOSIUM, SAN FRANCISCO. Reprinted from *Industrial and Engineering Chemistry*, **41**, 2384-2493, November 1949.

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This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications, which may be obtained either direct from the Society or other bookseller.

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(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

I THE LAW

CODE No.

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevent sections in full of the principal Acts. New Edition, 1948.
Cloth, 5s. (5s. 3d.); paper covers, 3s. (3s. 2d.)

51. **Model Byelaws, Smoke Abatement.** For Local Authorities proposing to make byelaws under Section 104 of the Public Health Act, 1936. (H.M.S.O., 1937).
1d. (3d.)

57. **Model Clauses** (*Revised Edition*, 1950). House of Lords and House of Commons. Contains Model Clauses for Prior Approval, Smokeless Zones and Heights of Chimneys. (H.M.S.O., 1950). 7s. 6d. (8s. 1d.)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans for post-war reconstruction. 1s. (1s. 2d.)

3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 2d.)

4. **Brighton Conference, 1946** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)

5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 8d.)

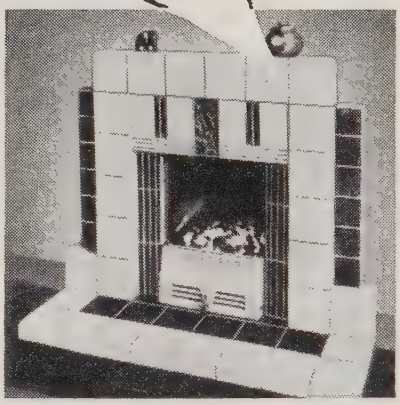
6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)

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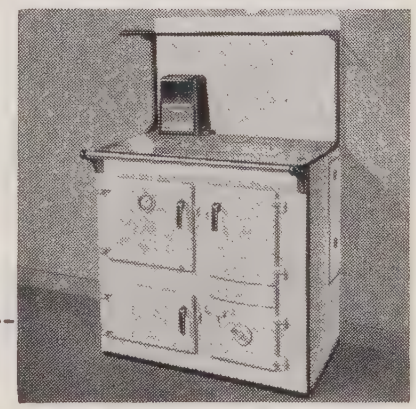
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7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (8d.)

8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 2d.)

9. **Smoke Abolition and the Public: Problems of Education and Propaganda.** Leslie Harden. Reprinted from 1948 Conference report. 6s. (8d.)

35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's view of the Case against Smoke. 4s. 6d. (4s. 8d.)

42. **Margate Conference, 1950.** The Des Voeux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as Applied to New Housing and Railway Smoke. 6s. (6s. 3d.)

47. **Blackpool Conference, 1951.** The Des Voeux Memorial Lecture—" Power and Waste in their Social Setting," and papers on the Smokeless Operation of Small Steam Raising Plant, Policies for the Prevention of Industrial Air Pollution and Smoke Prevention in the Home—The Woman's Viewpoint. 7s. 6d. (7s. 8d.)

52. **Portsmouth Conference, 1952.** The Des Voeux Memorial Lecture—" Smoke and the Law," Progress Reports, Incentives for Smoke Prevention and Pollution, Problems in the Iron and Steel Industry. 6s. (6s. 3d.)

(*See also VIII*, 29, 30, 32, 38, 45, 48)

III GENERAL

11. **Smoke: The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 7d.)

12. **Guilty Chimneys.** Classified extracts on the case against smoke from authoritative papers and reports, etc. With photographs and maps and diagrams in colour. Invaluable for speakers, writers and teachers. 1s. (1s. 2d.)

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14. **Britain's Burning Shame.** A popular pamphlet that puts smoke in its simplest terms to the woman in the home (1939). 2d. (4d.)

53. **Atmospheric Pollution: Its Origins and Prevention.** A. R. Meetham. A new publication covering the most important aspects of the problem. Fully illustrated. (Pergamon Press Ltd., 1952). 35s. (35s. 11d.)

IV HISTORICAL

15. **Fumifugium: or the Smoake of London Dissipated.** John Evelyn. The famous diarist's well-known tract (1616) reprinted by the Society, with an introduction by Rose Macaulay. Cloth 1s. 6d. (1s. 8d.); paper covers 6d. (8d.)

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VI INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 1s. (1s. 2d.)

36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural-Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949). 1s. (1s. 2d.)

(*See also II*, 3, 4, 5, 6, 35, 42, 47; *III*, 11, 52; *V*, 16)

VII DOMESTIC HEATING

20. **Heating and Ventilation of Dwellings.** The Building Research Board's comprehensive survey, with much material of smoke prevention interest. (H.M.S.O., 1945). 2s. 6d. (2s. 9d.)

21. **Domestic Fuel Policy.** Report of the Minister of Fuel and Power's Advisory Council (the Simon Report). Its recommendations relating to smoke prevention are of exceptional importance. (H.M.S.O., 1946). 1s. (1s. 2d.)

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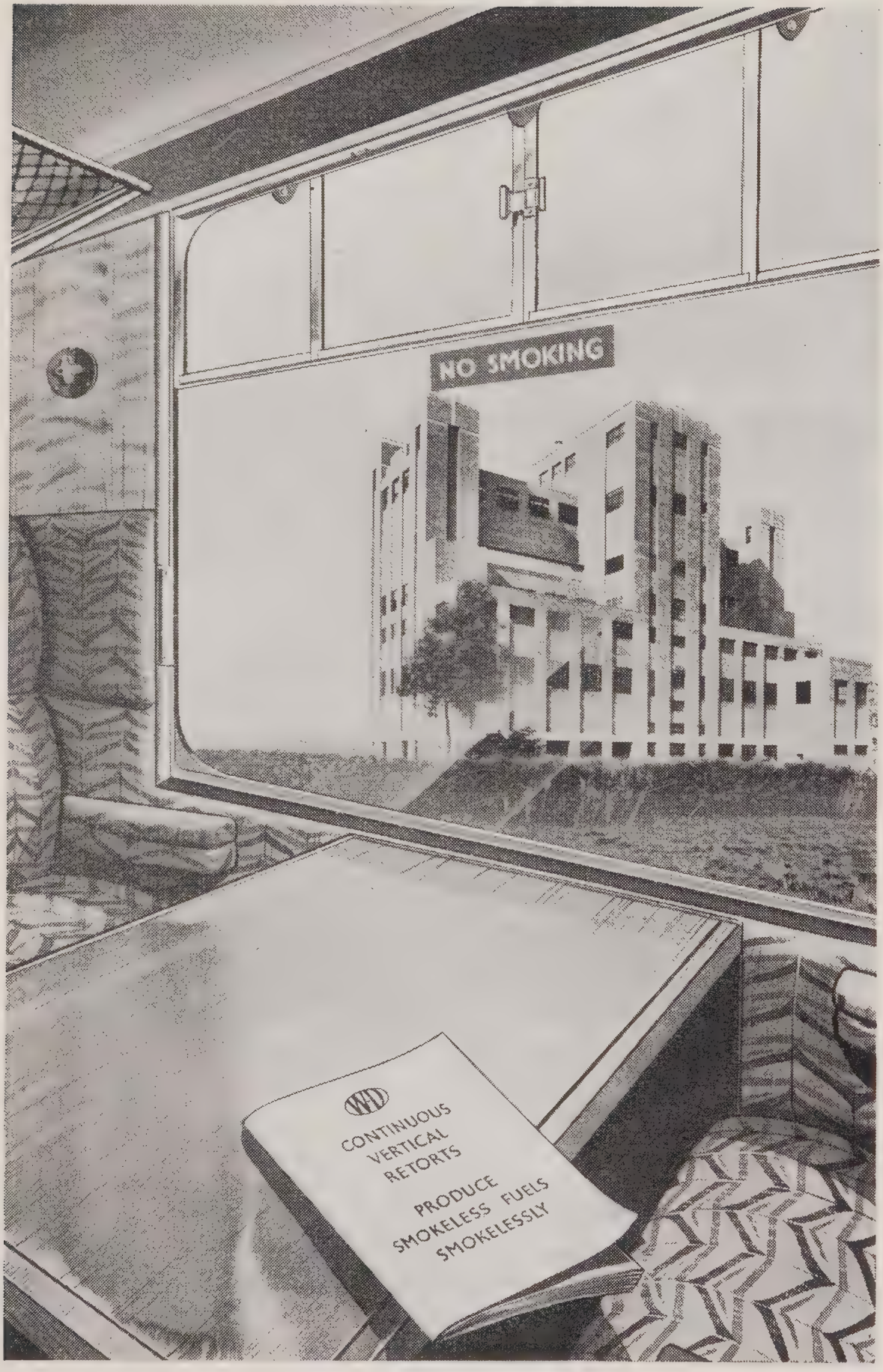
37. **District Heating in American Housing.** National Building Studies, Special Report No. 7 by the Ministry of Fuel and Power. The report of a mission to the U.S.A. in 1947. Fully illustrated and containing statistical tables. (H.M.S.O., 1949). 4s. 6d. (4s. 9d.)

44. **Housing Manual, 1949.** The official recommendations on housing practice. The section on the heat installation may be regarded as the basis of present-day smoke prevention policy. (H.M.S.O., 1949). 3s. 6d. (3s. 10d.)

(*See also II*, 2, 3, 4, 5, 6, 35, 42, 47, 51; *III*, 11, 52)

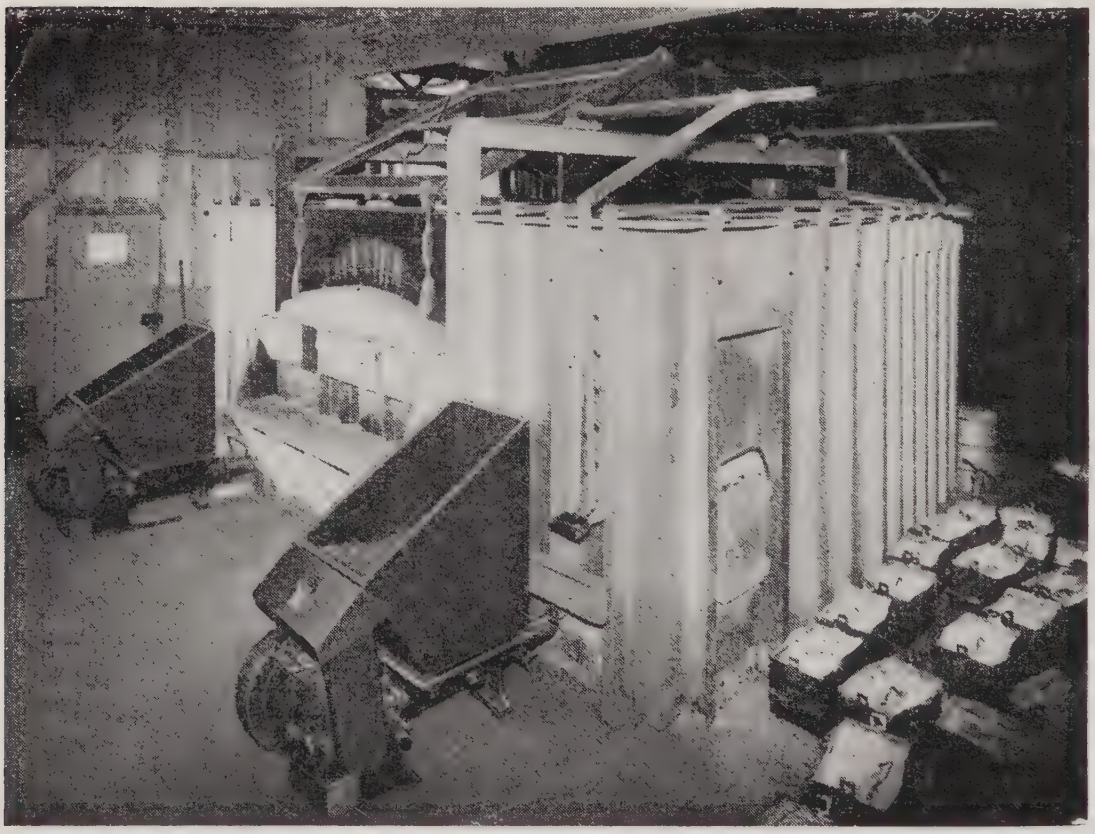
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29. **Smoke Abatement in Greater London.** Report of a conference of which the most important part is a paper of the same title by the late Dr. J. S. Owens. 6d. (8d.)

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38. **The Work of the Fuel Research Station.** Dr. A. Parker. Reprint from 1949 Conference Proceedings by the Director of Fuel Research. Illustrated. 1s. (1s. 2d.)

39. **The Investigation of Atmospheric Pollution.** 26th Report by the Fuel Research organization of the Department of Scientific and Industrial Research, co-ordinating local observations of atmospheric pollution. (H.M.S.O., 1949). 2s. 6d. (2s. 9d.)

45. **Towards the Better Use of Coal.** Dr. D. T. A. Townend. The first Des Voeux Memorial Lecture by the Director-General of the British Coal Utilization Research Association. Reprinted from the 1950 Conference Proceedings. 2s. 6d. (2s. 8d.)

48. **Power and Waste in their Social Setting.** Dr. J. Bronowski. The second Des Voeux Memorial Lecture. Reprinted from the 1951 Conference Proceedings. 1s. (1s. 2d.)

49. **British Standard for Deposit Gauges for Atmospheric Pollution,** Issued by the British Standards Institution giving details of contruction, siting, operation, analysis of deposited matter and statement of results, together with a standard report form for entering monthly results. (B.S.1747, 1951). 2s. 6d. (2s. 8d.)

55. **Policy for the Use of Fuel and Power Resources.** The Report of the Ridley Committee on National Fuel Policy. Appendix IV of this Report deals with smoke abatement. (H.M.S.O., 1952). 6s. 6d. (7s. 1d.)

(*See also II*, 3, 8; *VI*, 36)

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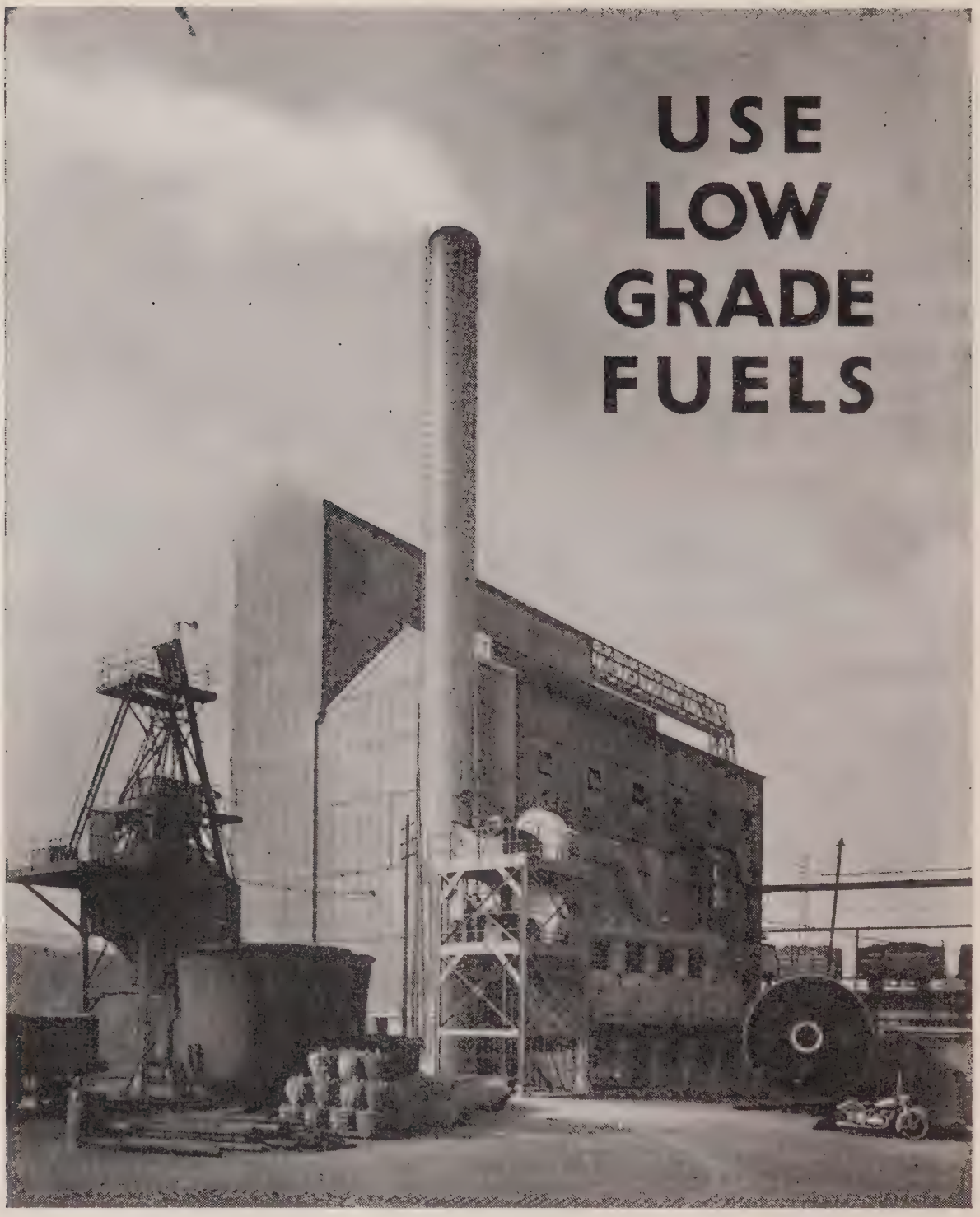
(*See also III*, 12)

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50. **Annual Report on Alkali, etc., Works.** The most informative and up-to-date source of the situation and progress in respect of pollution from chemical and other special industrial processes. 87th Report. (H.M.S.O., 1951). 1s. 9d. (1s. 11d.)

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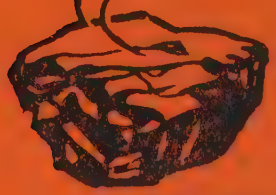


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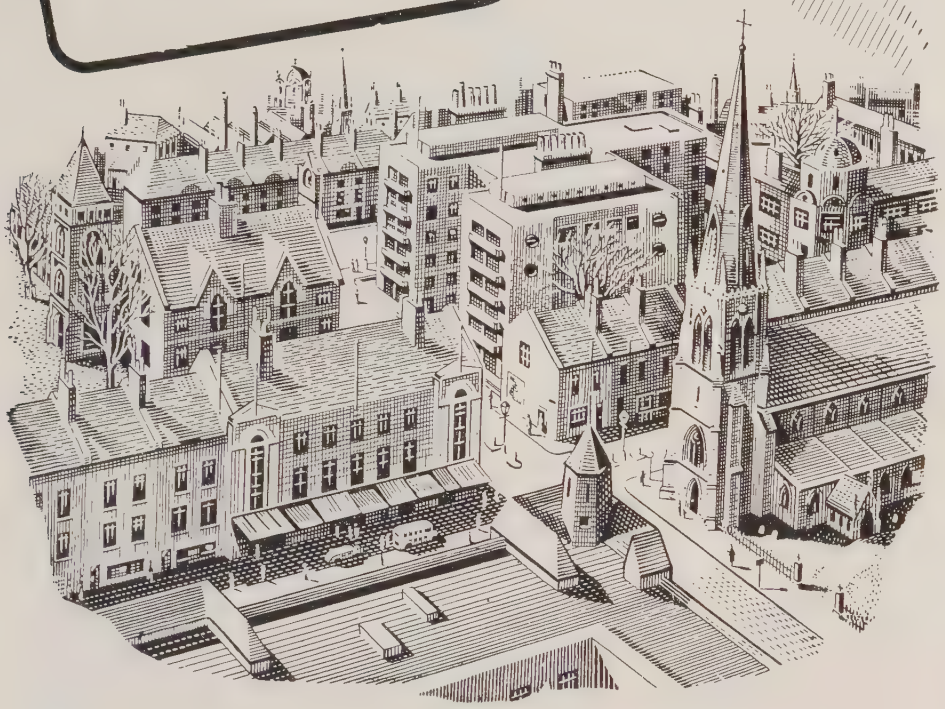
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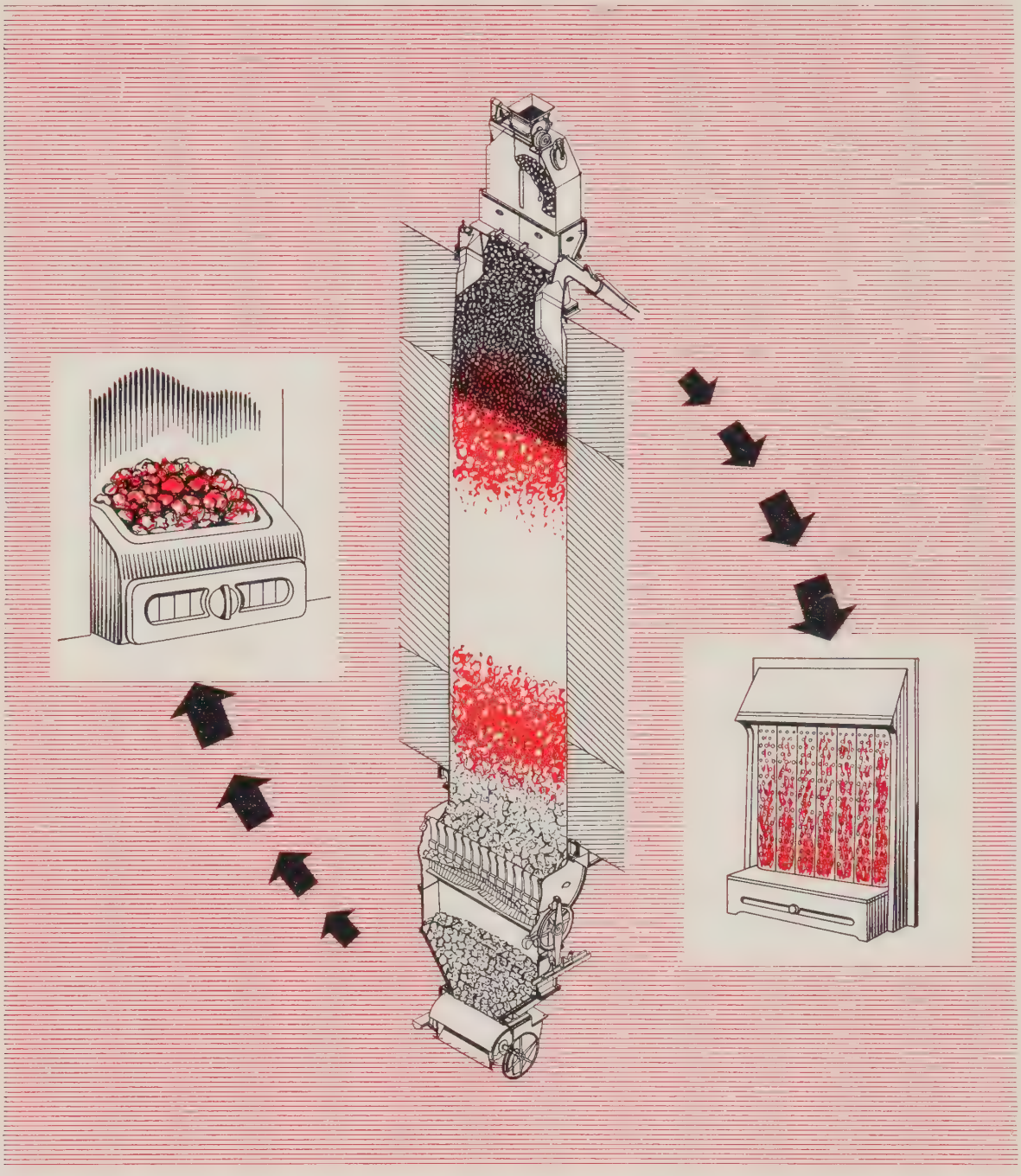
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CONTENTS

N.S.A.S. Section

	Page
Officers of the Society	5
Divisional Councils	5
Executive Council	6
24th ANNUAL REPORT AND DIVISIONAL REPORTS	7
Information about the Society	16
Services to Members	17
The Covenant Subscription Scheme	18
Accounts for the year ended 30th June, 1953	19
Subscriptions List for the year ended 30th June, 1953	21
Affiliated Local Authorities	27

General Section

The Law Relating to Smoke, etc.	31
Recent Local Legislation	31
The Alkali, etc., Works Act	32
The Investigation of Atmospheric Pollution and other work of the Fuel Research Station	32
The Ministry of Fuel and Power	33
The Beaver Committee Interim Report	34
Domestic Fuel Policy—The Simon Report	35
National Fuel Policy—The Ridley Report	37
The London Smoke Fog, December, 1952	38
Recent Papers and Reports: a Selected List	39
Directory of Organizations	41
Guide to Publications	47

Advertisers

British Electrical Development Association	1
Coalite and Chemical Products Ltd.	30
Drummond Patents (Holdings) Ltd.	51
Gas Council	Outside Back Cover
Ideal Boilers and Radiators Ltd.	Inside Front Cover
Midland Rexco Ltd.	52
Mirrlees Watson Co., Ltd.	45
Solid Smokeless Fuels Federation	43
West's Gas Improvement Co., Ltd.	Inside Back Cover
Woodall-Duckham Construction Co., Ltd.	2

Central Offices

30 GROSVENOR PLACE, LONDON, S.W.1



E. Huntly Woodcock

From Our Photo-Library

One of the features of SMOKELESS AIR, the Society's Quarterly Journal, is the reproduction of outstanding photographs that serve to spotlight the wide variety of sources of air pollution and the different problems that must be the concern of all in the movement for cleaner air. Similarly, SMOKELESS AIR reports all aspects of the problem in its special articles, records of papers, news pages, reviews and comment. Both circulation and influence steadily increase and many of the advertisers have had an unbroken series of insertions over many years—a gratifying indication of the prestige of the magazine. If you do not see SMOKELESS AIR regularly write to the Society for a specimen copy.

SMOKELESS AIR

One Shilling. Four shillings a year. Free to Members.

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Divisional Councils

Scottish

City Chambers, Glasgow (Central 9600 Ext. 421).
Chairman: Bailie John H. P. Taylor.
Hon. Secretary: Norman Fraser.

North West

Health Department, Town Hall, Manchester, 2 (Central 3377 Ext. 339).
Chairman: Dr. J. S. G. Burnett, D.P.H.
Hon. Secretary: H. Moore.

North East

Sanitary Department, Council Offices, Ashington, Northumberland (Ashington 3210).
Chairman: Alderman J. Chapman, M.B.E.
Hon. Secretary: G. W. Tate, M.R.SAN.I., F.S.I.A.

Yorkshire

Public Health Department, 12 Market Buildings, Vicar Lane, Leeds 1 (Leeds 30211 Ext. 29).
Chairman: James Law.
Hon. Secretary: James Goodfellow, M.R.SAN.I., A.M.I.S.E.

West Midlands

67 Broad Street, Birmingham 1 (Central 7000 Ext. 442).
Chairman: Alex. W. Lee, A.INST.GAS E.
Hon. Secretary: G. W. Farquharson, M.S.I.A.

East Midlands

Sanitary Inspector's Office, 50 Shakespeare Street, Nottingham (Nottingham 40584).
Chairman: Councillor A. Mead.
Hon. Secretary: A. Wade, M.B.E., F.R.SAN.I.

South East

Town Hall, Acton, London, W.3. (Acorn 3232).
Chairman: Dr. A. J. Shinnie, O.B.E., D.P.H.
Hon. Secretary: J. J. Matthews, M.R.SAN.I

EXECUTIVE COUNCIL

Elected Divisional Representatives

Scottish Division

Mr. J. F. Anderson, Mr. J. Innes, Bailie J. H. P. Taylor.

North West Division

Dr. J. L. Burn, Dr. J. S. G. Burnett, Mr. S. N. Duguid, J.P., Mrs. L. Hayhurst, Alderman T. M. Larrad, Mr. W. L. Mather, M.C., T.D., Alderman Professor F. E. Tylecote, J.P.

North East Division

Alderman J. Chapman, M.B.E., Alderman P. S. Hancock, O.B.E., Mr. P. C. G. Isaac.

Yorkshire Division

Dr. I. G. Davies, Mr. J. Goodfellow, Mr. J. Law, Mr. A. C. Saword.

West Midlands Division

Mr. G. W. Farquharson, Dr. W. R. Martine, O.B.E., T.D., Mr. C. A. Stansbury.

East Midlands Division

Councillor the Rev. A. Brooke Westcott, Mr. F. G. McHugh, Mr. A. Wade, M.B.E.

South West Division

Mr. G. W. Dhenin, Mr. F. R. Jefford, M.B.E. Mr. F. J. Redstone.

South East Division

Mr. N. Bastable, Mr. H. G. Clinch, M.B.E., Miss M. Godby, Dr. R. Lessing, Mr. J. J. Matthews, Mr. G. Nonhebel, Dr. A. J. Shinnie, O.B.E. Mr. H. L. Snowden, Mr. L. A. Stroud.

Appointed Representatives of National Bodies in Membership

Mr. M. G. Bennett (*British Transport Commission*).
Commander C. Buist, M.V.O., R.N. (Ret.) (*Low Temperature Coal Distillers Association*).
Mrs. D. M. Charlton (*Women's Advisory Council on Solid Fuel*).
Dr. T. P. Colclough, C.B.E., (*British Iron and Steel Federation*).
Mr. J. Cooke (*Solid Smokeless Fuels Federation*).
Dr. H. E. Crossley (*British Electricity Authority*).
Mr. V. W. Dale (*British Electrical Development Association*).
Dr. F. J. Eaton (*Institution of Gas Engineers*).
Miss J. Frith, O.B.E., (*Women's Gas Federation*).
Alderman Mrs. Gregory or Mrs. J. Falconer (*Electrical Association for Women*).
Mr. Leslie Hardern (*The Gas Council*).
Mr. H. R. Hodgson (*National Coal Board*).
Mr. H. S. Horsman or Mr. C. T. Melling (*Institution of Electrical Engineers*).
Dr. J. Johnstone Jervis (*British Medical Association*).
Mr. W. R. McGrath (*Sanitary Inspectors' Association*).
Mr. E. G. Stewart (*Institute of Fuel*).

Co-opted to Technical Committee of the Executive Council

Mr. W. A. Damon (*Ministry of Housing and Local Government*).
Dr. C. Forrester (*Ministry of Fuel and Power*).
Mr. J. S. Hales (*British Coal Utilization Research Association*).

Chairman of Committees

Technical: Dr. R. Lessing (*Deputy*, Mr. G. W. Farquharson).
Conference: Mr. J. J. Matthews.

TWENTY-FOURTH ANNUAL REPORT

for the Year ended 31st December, 1953

GENERAL REVIEW

The Rising Tide

The place of the air pollution problem in the affairs of the nation rose to a higher level in 1953 than in any year since it first began to be a problem. The London fog disaster of December, 1952, was discussed in the Society's 23rd Report, in which comment was made on " the strangely calm, almost fatalistic, way in which so much death, suffering and incapacity is received." Following the publication in the months that followed of various medical and other reports on the fog there was, however, a remarkable development of interest and concern on the part of the public, the Press, and the Government. It will be recalled that the Government at first considered it unnecessary to re-examine the problem, and that it was not until 21st July that the Minister of Housing and Local Government was able to announce the membership of the Committee of Inquiry (The Beaver Committee) that, as a consequence of public anxiety it had finally been decided to appoint.

The growing interest in the problem reached a climax in the autumn, with greater Press notice than ever before for the Society's annual conference, a genuine fear of another lethal fog, a much publicized controversy over the value of what quickly came to be called smog-masks, and finally the publication of the short interim report of the Beaver committee.

One measure of the public attention being called to the menace is the number of Press cuttings received by the Society. From an average of 60 per month seven years ago these had risen to 300 a month prior to the London fog, and during the last quarter of 1953 were coming in at a rate of over 1,000 per month.

The papers and reports that helped to make " informed " public opinion—the minority opinion that must precede popular opinion—so much aware of the problem of pollution include a detailed analysis of the London fog mortality by the Chief Medical Statistician of the General Register Office, that appeared in *The Lancet* of 14th February, two important articles in *The Times* on 20th and 21st April, the Survey of the fog that appeared in the Spring issue of *Smokeless Air* and was subsequently reprinted in pamphlet form, and a number of reports by Medical Officers of Health in the London area, notably those of Dr. J. A. Scott, Medical Officer to the London County Council. Later in the year were the Glasgow Conference reports, and the papers by Mr. C. J. Regan and Dr. E. T. Wilkins mentioned on another page of the Year Book.

The sudden general acceptance of the word " smog," which although commonly used in the U.S.A. had hitherto failed to find favour in this country, was a sign of the way in which the public was becoming aware of the problem in a new, more personal way. For the great tasks of education that still lie ahead this change is most important. The publicity given to smog-masks may be criticized on various grounds, but nevertheless it too has its value in making the public conscious, largely for the first time, of the reality of the problem. To those concerned on a more serious level with subjects such as air pollution the direction taken by publicity and popular discussion may at times be disconcerting, but must nevertheless be welcomed.

The Government Committee

The Committee set up by the Minister of Housing and Local Government, the Secretary of State for Scotland and the Minister of Fuel and Power consists of ten members and its Chairman, Sir Hugh Beaver, with assessors from the Ministries and Departments concerned. It was gratifying to the Society that three of its own Executive Council members should have been included: Dr. R.

Lessing, Dr. J. L. Burn, and Mr. G. Nonhebel. The Committee published an Interim Report before the end of the year, in which they reviewed the existing situation and accepted the need for action to be taken. A summary of the main features of the Report is given in the general information section of this Year Book.

The Committee is now considering the problem in greater detail with a view to using a further report on measures to be taken. The Society has prepared, and will be submitting to the Committee, a memorandum outlining the policy it considers to be necessary.

Smokeless Zones

Although no new smokeless zones were established during the year further local authorities have secured the necessary powers and the principle has made remarkable headway, largely as a result of the growing acceptance of the view that improvements must be achieved first in the smokier areas, and particularly those most liable to smog. The success of the Manchester smokeless zone, the area of which it is now proposed to double, has provided valuable evidence on the practicability of the principle and its importance as a means for stimulating public opinion.

The Boiler Operators' Certificate

The Society has for many years advocated and encouraged, as one most important factor in smoke prevention, the better training of boiler and furnace stokers, and in 1950, as a result of work by a sub-committee of the Technical Committee, a proposal for a new form of certificate of proficiency, that would have national standing, was submitted to the City and Guilds of London Institute. The proposal was studied by the Institute's Advisory Committee on Boiler House Practice and approval has now been given to a new " Boiler Operators' Certificate." This will be recognized in every part of the country and is in effect the national certificate desired by the Society.

The Fuel Conservation Report

A full review was given in *Smokeless Air*, Autumn, 1953, of the important report on Fuel Conservation published by the British Productivity Council. Though primarily a comparison of fuel utilization methods and efficiencies in the U.S.A. and this country, it is largely an outspoken indictment of our wasteful practices. It devoted an entire chapter to " The Cost of Smoke," in which tribute is paid to the Society's work, and one of its recommendations was that the Society should receive " financial encouragement from the State to expand the realistic work it has been doing."

Papers

The year has seen the publication of an unusually large number of papers on air pollution and related subjects. These are listed elsewhere and it will be seen that they include papers read to the Society's national and divisional meetings, the Advisory Committees, the Institute of Fuel, and other bodies. In addition, the literature from the U.S.A. and Canada continues to grow.

THE SOCIETY

General Progress

The Society has again increased its membership and improved its financial position during the year. Of equal importance is the growth of the Society's influence and prestige, as judged by the attention given to its activities and the references frequently made to the value of its work—including tributes recently made in both the House of Lords and the House of Commons.

The increased rates of subscription agreed upon at the Annual General Meeting of 1952 have been accepted by virtually all members and with new membership subscriptions in addition it has been possible to keep income and expenditure in satisfactory balance, although still at a level that is much too low for the work that is called for.

Although the principal activities of the Society during the year show little superficial difference over previous years the general upsurge of interest in the subject added considerably to day-to-day work at headquarters. This work has included much additional correspondence and telephone inquiries; supplying information literature and references; co-operation with the Press and in connection with films being made; the loan of photographs; dealing with complaints of

smoke nuisances; assisting in exhibitions with either material or ideas; and giving reasonable attention to numerous inventors and their claims.

This unsolicited public relations work cannot be set aside and its growth, though apt to be embarrassing, is a most encouraging proof of the extent to which the Society is now known and the reliance that is placed upon it. Such work is likely to grow even further in the near future, and must be recognized as one of the Society's most important activities and obligations, which in value may come to exceed more conspicuous activities.

The Glasgow Conference

The conference held in Glasgow from 30th September to 2nd October was notable for being the second largest of its kind, the highest attendance being that at Edinburgh in 1947. The number of delegates and guests was 424.

The most generous hospitality was given by the Lord Provost of Glasgow, Thomas A. Kerr, Esq., and the City Corporation, both in allowing the Society to use the Banqueting Hall at the City Chambers for its meetings and for a delightful evening reception. The papers and discussions were as follows:

The Des Vœux Memorial Lecture on " Air Pollution in Relation to Preventive Medicine," by Sir John Charles, Chief Medical Officer, Ministry of Health.

The Presidential Address on " Smoke and the Local Authority," by Alderman Professor F. E. Tylecote, M.D.

Reports on the London Fog Disaster by Dr. J. A. Scott, Medical Officer of Health, London County Council, Dr. A. Parker, Director, the Fuel Research Station, and Mr. Arnold Marsh, General Secretary of the Society.

Report on Smokeless Zones by Dr. T. M. Clayton, Medical Officer of Health, City of Coventry.

Session on Solid Smokeless Fuels, arranged by the Solid Smokeless Fuels Federation, with a paper on " Production and Use " by Dr. F. J. Eaton, G. E. Hall and Islwyn Jacob and one on " Availability and Distribution " by J. O. Cooke, H. H. Prosser, Eric J. David and Commander C. Buist, C.V.O.

Paper on the Efficient and Smokeless Combustion of Fuel Oil, by K. H. Sambrook.

On the Friday afternoon, by kind invitation of the North of Scotland Hydro-Electric Board, a party of 160 delegates visited the Loch Sloy generating station and dam.

As usual, the papers and discussions are being published in full as the *Proceedings of the Glasgow Conference*, 1953.

Resolutions

Because a detailed statement of policy for submission to the Government Committee on Air Pollution was then under consideration and any resolutions on major matters of policy could be referred only to the Commitee, no resolutions were submitted to the conference on behalf of the Executive Council. The following, however, were submitted by members and were adopted.

(1) The Women's Gas Federation urges the National Smoke Abatement Society to take special action in bringing the subject of smoke abatement to the notice of the women of the country, in particular by talks to women's organizations, articles in the women's Press (including the specialized journals of women's organizations) and feature items in women's sound and television broadcast programmes.

(2) That we, as a Conference, view with alarm the menace of fumes caused by the extension of the use of Diesel oil engines and faulty maintenance of these, and that all local authorities and Police be requested to enforce and if necessary increase their powers to ensure minimizing or suppression of these fumes in the interests of public health.

The second resolution was subsequently submitted for the attention of all local authorities in Great Britain (1760) together with two resolutions that earlier had been accepted by the Executive Council from the North West Division. These were as follows:

That sufficient space should be provided for the storage of fuel at dwelling houses to enable an adequate quantity of the lighter solid smokeless fuels to be stored and kept separated from bituminous coal.

That local authorities should be urged to improve their arrangements to ensure that tenants of municipal houses with the modern appliances are advised and persistently encouraged to burn solid smokeless fuels.

Communications since received indicate that the resolutions have been discussed and acted upon by a considerable number of authorities.

The Divisions

The Divisional reports that follow show that their activities have been fully and usefully maintained during the year. The exception it that the North East Division unfortunately continues to have its activities restricted because of difficulty of attendance at meetings of representatives from local authorities subject to District Audit.

It will be noted that during the year a seventh Divisional Council, for the South East, was established. The only area not covered by a Divisional Council is now the South West, where geographical conditions create difficulties. It is however hoped to make progress as a result of a meeting that is being convened by the Society in South Wales.

The Executive Council and Committees

The Executive Council has met at quarterly intervals, with excellent attendance. The Conference and Technical Committees have been fully occupied, the latter particularly with the drafting of the Memorandum for submission to the Beaver Committee. Because of the pressure of other activities the General Purposes and Publicity Committees have for the time being been merged in the Executive Council.

Officers

In the annual elections, 1953, the only nomination received for President was Sir Ernest Smith, C.B.E., who was also re-nominated as Hon. Treasurer. Sir Ernest's election as President was therefore announced at the Annual General Meeting held in Glasgow on 2nd October, 1953. The meeting expressed its grateful thanks to the retiring President, Alderman Professor F. E. Tylecote, for his services to the Society during his term of office.

The retiring Vice-Presidents were also re-elected, and two new Vice-Presidents elected: Mr. Sydney N. Duguid and Mr. Alex Lee.

The newly elected Executive Council at its first meeting in Glasgow appointed Dr. W. R. Martine, O.B.E., T.D., as its Chairman in succession to Mr. Duguid, and Mr. F. J. Redstone and Alderman Professor F. E. Tylecote as Deputy Chairmen. Dr. Martine, in assuming the Chair, voiced the thanks of the Council to the retiring Chairman for his services.

Staff

One new appointment, bringing the total full-time staff at headquarters to six, was made during the year. Further appointments are desirable if the Society is to carry out its increasing activities effectively but can only be made as and when the financial position allows.

At a meeting of the Executive Council held on 10th December, Mr. Arnold Marsh, General Secretary of the Society since its formation, was appointed Director, and Mr. Victor R. Silver, who joined the staff in 1946 as an administrative assistant, was appointed Secretary. The Director will continue to be responsible to the Executive Council for the administration of the Society's headquarters and staff, and will be concerned more particularly with matters of policy and development. The Secretary will be concerned with the secretarial and business sides of the administration.

Offices

Increasing congestion at the Society's present offices in Buckingham Gate has made it necessary to consider removal to other premises, and at the end of the year under review negotiations were in progress for the renting of offices in Grosvenor Place which will provide better working room for the staff and storage space for publications and exhibition material. It will be possible to hold meetings of Committees, though not of the Executive Council, in the offices.

Publications

The inclusion of this annual report, with the subscriptions list and financial statement, etc., in a Year Book which also includes general information and references on air pollution appears to have met with the approval of members and many others, and is found to be a most useful means for introducing inquirers to the Society and its work.

The circulation of *Smokeless Air* continues steadily to increase and has now reached 5,000 for each issue—a figure which compares well with many other specialized periodicals. The increased quantity of "news" on air pollution in recent months creates difficulties for a quarterly publication, and especially one of limited size. There would be many advantages if it were published monthly, but such a development cannot be considered until more staff is available.

Two small booklets of excerpts from the Ridley Report on National Fuel Policy, giving verbatim the sections and paragraphs relating to smoke prevention, have been prepared and published by the Society. One deals with the domestic, and the other with the industrial problem. Copies were sent to all local authorities

with the suggestion that further copies be purchased for distribution by the authorities among their members or others in the area. The response has been most satisfactory, and so far some 25,000 copies have been sold. Members may obtain copies free of charge on request.

Lectures

The public interest in smoke prevention has led to many more requests than usual for lectures. A number of these have been arranged through the Divisions and a number given by Mr. Marsh and Mr. Silver.

Exhibitions

The Society's exhibition material has been frequently loaned to local authorities and others in different parts of the country during the year, and it is hoped that opportunity may be found for increasing the number of exhibits available. The Society also co-operated in an exhibition, at the Charing Cross Underground Station, of the Solid Smokeless Fuels Federation and the " Smoke and Smog " exhibition of the Royal Sanitary Institute. Both these exhibitions were highly successful and attracted much public attention.

Membership

The present membership of the Society, including Associate members, is as follows:

Local Authority	447
Corporate and Institution ..	151
Individual	301

The Local Authority, Corporate and Institution members appoint two or more representatives to receive communications and act, in respect of the annual elections and voting on resolutions, etc., on behalf of the member. The voting strength, by Divisions, for the last elections, was as follows:

Scotland	122
North West	304
North East	115
Yorkshire	159
West Midlands	106
East Midlands	128
South West	96
South East	385
Northern Ireland	1
Total	1,416

Legacy

During the year the Society was notified that it was a beneficiary under the estate of the late Mr. F. N. Weightman of Newcastle upon Tyne. The sum to be received is likely to be about £2,000.

Appeal

During November the President initiated an appeal to a limited number of industrial firms for financial support for the work of the Society. The response has been most satisfactory and an approach is now being made to industry in general and also to the Life Assurance companies and other groups.

The development and expansion of the work of the Society will depend largely on the response that is made to this appeal.

W. R. MARTINE, *Chairman*
ERNEST SMITH, *Hon. Treasurer*
ARNOLD MARSH, *Director*

SCOTTISH DIVISION

The past year has been one of great significance in the history of the Society particularly in Scotland. The " smog " in London last winter resulted in a gratifying increase in newspaper publicity and incidentally in public interest in the objects of the Society.

So far as the Scottish Division is concerned this interest and enthusiasm on the part of the members and public culminated in the Conference held in Glasgow this year which has already been reported on by the General Secretary and which was such an outstanding success. Our own Divisional Conference took place on 28th and 29th May last, in Galashiels, where hospitality was extended by the Town Council. The addresses were extremely interesting and the Conference concluded with a progress report by Mr. Arnold Marsh, the General Secretary. The local Gas Board arranged a visit for the delegates to the gas works and later Galashiels Town Council provided a bus tour through the historic Scott country which was greatly appreciated by the delegates.

The Scottish Council have again circularised all local authorities recommending that all necessary steps be taken to reduce the pollution of the atmosphere and danger to health caused by the increasing excessive emission of fumes from diesel road vehicles.

NORMAN FRASER, *Hon. Secretary.*

NORTH WEST DIVISION

"Smog" received considerable publicity in the North West following the London Fog Disaster. As one of the black spots, we hope that interest will not wane and that some drastic reform will arise from the recommendations of the "Beaver" Committee which is now wrestling with the problem.

The Divisional Council met on four occasions during 1953, twice in Manchester and also at Liverpool and Accrington, the average attendance being 20.

The meeting at Accrington in June was combined with a tour of the modern generating station at Huncoat, the focal point being the inspection of the electrostatic precipitation installation for which a very high efficiency was claimed.

Further progress was made with regard to the question of the supply and distribution of solid smokeless fuels and resolutions embodying the conclusions reached were forwarded for the consideration of the National Executive. The resolutions have since been referred to the various National bodies, Local Authorities, etc. concerned, and it is hoped that some beneficial results will ensue.

All members and representatives were advised by circular of the pronouncements of the Technical Committee and were requested to make them widely known. It is believed that this propaganda served a useful purpose.

Among other matters of interest dealt with was one concerned with heavy smoke from a colliery chimney and the Local Authority has been influential in securing the progressive installation of modern stoking equipment and electrification which, on completion, should remove cause for complaint.

In another case assistance has been rendered to a local authority in dealing with a persistent nuisance from an industrial establishment. The Council assisted in the preparation of the Society's memorandum of evidence to the Beaver Committee by examining the contributions of members and submitting a digest of recommendations.

The Annual General Meeting took place at the Town Hall, Manchester, in May when the Lord Mayor officially welcomed the members. Following the formal business Mr. S. N. Duguid gave an interesting address on Smoke Abatement in general entitled "Let there be Light."

An open meeting was held in Liverpool in March, the speaker being Dr. A. B. Semple, M.O.H. Liverpool, whose address on Domestic Smoke Pollution was very well received and inspired a lively discussion.

Two successful meetings have been held with the Institute of Fuel. At Manchester Dr. Monkhouse of the Fuel Research Station was the speaker. His address was most informative and was much appreciated. The second was an evening meeting, held in Liverpool, when Mr. Arnold Marsh reviewed the law relating to smoke abatement and the development of modern principles. The Liverpool Engineering Society and the Merseyside Civic Society also participated and the discussion testified to the interest created.

There was a marked increase in Press publicity during the year which probably had some bearing upon the greater demand for information particularly from schools and students. With the Beaver Committee in mind we welcome 1954 as a year of great promise.

H. MOORE, *Hon. Secretary.*

YORKSHIRE DIVISION

The year 1953 has been a very busy one for the Yorkshire Divisional Council; five Divisional Council meetings being held in addition to a Special Meeting and the Annual General Meeting. Attendance at all meetings has been well up to average.

The first meeting, held in Leeds on 30th January was for elected members only and matters of policy, etc. were dealt with in addition to co-opting fourteen interested organizations to the Divisional Council for 1953.

In the afternoon of the same day a Special Meeting was held in the Civic Hall, Leeds to discuss the paper presented by Mr. Marsh at our Annual General meeting in the previous November and entitled "Smoke Prevention—Problems and Prospects." After Mr. Marsh had summarized the main points of his paper a full discussion took place; the majority of the 49 delegates present expressing their views on such differing topics as—Cancer of the Lung; Effect of Atmos-

pheric Pollution on Plant Life; New grates; Comparative costs of fuels; etc. The meeting concluded with the showing of the film " Pictures in the Fire " by courtesy of the Coal Utilization Council.

On 27th February the Council paid a visit to the Midland Coke Research Station at Sheffield at the invitation of the British Coke Research Association. Dr. R. A. Mott, Superintendent of the Station, addressed members present on the " Possible Contribution of the Coke Oven Industry to Smoke Abatement." A very full discussion followed on the nature and uses of coke, after which Dr. Mott conducted the party round the Research Station explaining the experimental and research work that was being done.

Manchester was visited on 14th May at the invitation of the North West Division and fourteen members of the Council attended the Annual General Meeting of that Division to hear Mr. S. N. Duguid, Chairman of the Executive give an address entitled " Let there be Light."

Our next meeting was held at South Elmsall Colliery on 13th July. The Council were warmly welcomed by Mr. Scott, Area Manager of the N.C.B., who gave some idea of the difficulties they were experiencing in re-organizing for mechanization and electrification. Mr. C. T. Peacock, Senior Sanitary Inspector to Hemsworth R.D.C., who arranged this meeting, gave a brief address on the difficulties in his district, mainly from the collieries and burning spoil banks. After lunch at the invitation of the Chairman of the N.E. Division of the N.C.B. five members of the Council paid a visit underground to inspect the works and the coal face. (see photograph—*Smokeless Air*—Winter, 1953).

The final meeting of the session was held in the Guildhall, Kingston-upon-Hull where members were very warmly welcomed by the Lord Mayor and Admiral of the Humber. After lunch with the Lord Mayor, the nineteen members present paid a visit, arranged by Mr. A. C. Saword, C.S.I., Hull, to the Melton Cement Works of G. & T. Earle Ltd. In spite of the inclement weather a tour of inspection was made and the Council were shown the various processes and equipment used in the manufacture of cement. Of especial interest was the electrostatic precipitator recently installed.

Members of the Divisional Council have continued lecturing to varied organizations in the area during the year and report increased interest in methods for ensuring a cleaner atmosphere. We are also pleased to report a continued increase in Local Authority membership.

At our sixth Annual General Meeting held in Leeds on 23rd November, Professor I. G. Davies, Medical Officer of Health for Leeds and a member of the Divisional Council, addressed the meeting on " Some Aspects of Atmospheric Pollution " which was listened to very keenly by the 56 delegates present. Professor Davies dealt with the medical aspect of atmospheric pollution in great detail and his address was received with acclamation.

Mr. John W. Beaumont, Chairman of the Yorkshire Divisional Council for the past three years, has resigned from this office owing to pressure of other work and we should like to put on record our appreciation and thanks for help and guidance he has given to the Yorkshire Divisional Council during his term of office. Mr. Beaumont is succeeded by another well-known personality, Mr. James Law of Sheffield.

JAMES GOODFELLOW, *Hon. Sec.*

WEST MIDLANDS DIVISION

It is with pleasure that one can record that the position regarding County Councils supporting the membership of the Society has been clarified, and that the Minister of Housing and Local Government is now prepared to entertain applications from County Councils for his consent under Section 136 of the Local Government Act, 1948 to the payment of subscriptions to the Society, and the division welcomes the return of the Warwickshire County Council and its appointed representatives to the Society.

The management committee has continued its policy of widening interest in matters appertaining to the Society's aims and ideals, and joint meetings have been held with representatives and members of other national societies.

In February our members had the pleasure of hearing an address by Dr. A. R. Meetham, D.SC., entitled " Various

Aspects of Atmospheric Pollution." This meeting was held in Birmingham at the invitation of the Midland Centre of the Royal Meteorological Society.

On the 23rd April, under the Chairmanship of Mr. A. W. Lee, Deputy Chairman, West Midlands Gas Board, the Annual General Meeting was held in Wolverhampton. His Worship the Mayor of Wolverhampton, Councillor H. T. Fulwood, J.P., officially welcomed the 74 delegates. The business meeting was followed by an excellent address from Mr. T. F. Hurley, Chief Research Engineer, Fuel Research Station, Department of Scientific and Industrial Research, and the film "Fire without Smoke." was followed by a discussion. Afterwards Mr. Arnold Marsh, General Secretary, reported on the activities of the Society, emphasizing the progress made, and how much useful work, within the limits of the financial resources available to the Society, had been carried out towards the fulfilment of its declared objectives.

The delegates were entertained to an excellent luncheon by the Board of Directors of the Midland Tar Distillers Ltd., and proceeded to the Company's new refinery at Four Ashes, Staffordshire, where the Company's Directors and Managers acted as guides. The visit was favoured by ideal weather, and the generosity of Mr. Stanley Robinson and his co-directors will long be remembered. A description of the refinery and the processes involved was dealt with in the summer 1953 edition of *Smokeless Air*.

The division was represented at the Conference of the Women's Gas Circle, held in Birmingham on the 19th November and through the medium of an address by the divisional Honorary Secretary, the opportunity was taken to publicize the ideals of the Society, and the importance of the housewife towards the attainment of cleaner air.

On the 9th December a joint meeting was held with the Midland sections of the Institution of Heating and Ventilating Engineers and the Institute of Fuel. A large attendance was attracted to hear an address by Mr. Peter C. G. Isaac, Public Health Engineering Laboratory, King's College, Newcastle upon Tyne, followed by the Sound Film "The City that Disappears," which was shown through the courtesy of the Stanford Research Institute, U.S.A. Mr. Isaac introduced his subject in an excellent manner, and imparted valuable and interesting information to his audience.

The management committee has dealt with a variety of subjects at their meetings, such as:—advice to members on matters relating to smoke abatement, exhibition material, and the consideration of a scheme of wind tunnels for electrical generation; after due consideration the proposer of the scheme was advised on the impracticability of his designs and ideas.

The management committee received the resignation of Alderman G. T. Timmis O.B.E., J.P., as Deputy Chairman of the Division with regret: his pioneer work for smoke abatement in the City of Stoke made him an outstanding Vice President of the Society.

All members of the division were invited to give their views on the nature of a memorandum to be prepared by the Society for submission to the Government Committee of Inquiry. The replies though varying, and ranging over many aspects of air pollution, were duly considered, and with other divisional views were utilized as a basis for the formation of the memorandum.

The division was well represented at the Annual Conference, and it was pleasing to note that Mr. Alex. W. Lee the Chairman of the Division was duly elected as a Vice President of the Society, and that Dr. W. R. Martine, Deputy Chairman of the Executive Council, was elected to be Chairman.

G. W. FARQUHARSON, *Hon. Secretary.*

EAST MIDLANDS DIVISION

Substantial progress in the work of the Society has been apparent during 1953. Public interest in smoke abatement is undoubtedly increasing and is reflected in the inquiries received from various sources for information and advice. Valuable Press publicity has been forthcoming following discussions at divisional meetings and addresses to interested organisations by members of the Society.

The case against smoke has now been fully proved and has been accepted by large sections of the community. The time has arrived, therefore, when there should be action to demonstrate the practical steps which are available to

reduce smoke pollution. To create a smokeless country must be a long term project because of its magnitude and complexity but there is no reason why a commencement should not now be made. In this connection, the development of a large smokeless housing estate at Clifton by the Nottingham Corporation is an excellent illustration of the objects and work of the National Smoke Abatement Society. There can be no doubt that the best way to gain support for the movement is to provide practical examples of smokeless developments. The Clifton scheme has created widespread interest throughout the country and information about it has been supplied to numerous local authorities and interested organizations.

Three successful general meetings were held in the Division during 1953:—*Staveley*, 12*th March*—Members were conducted over the works of the Staveley Iron and Chemical Co. Ltd., An address was given by R. V. Riley, PH.D., B.SC., Research Manager of the Company.

Leicester, 2*nd July*—At the Annual General Meeting, Councillor A. Mead, J.P., C.C., was elected Chairman of the Division for the year 1953-4 and T. Henry Turner, M.SC., was elected Deputy Chairman. The General Secretary of the Society (Arnold Marsh) gave a "Progress Report with Particular Reference to the Lessons of the London Fog Disaster."

Kirkby-in-Ashfield, 29*th October*—Delegates were conducted to the underground workings of the Kirkby and Bentinck Collieries under arrangements made by F. D. Severn, the Area General Manager, National Coal Board. The meeting which followed was by invitation of our Chairman (Councillor A. Mead) who was also Chairman of the Kirkby-in-Ashfield Urban District Council. The film "The City that Disappears" was shown illustrating the nature and causes of smog in Los Angeles. An address entitled "Smoke Pollution and Collieries" was delivered by C. S. Buchan, Area Mechanical Engineer, National Coal Board.

A. WADE, *Hon. Secretary*

SOUTH EAST DIVISION

A meeting of members and representatives of members in the South East Division was held on 26th June at the Caxton Hall, Westminster, with the President, Alderman Professor F. E. Tylecote, in the Chair. There was an attendance of about 170. The meeting, which had been convened to consider the setting up of a South East Divisional Council, was addressed by Sir Ernest Smith, Dr. A. J. Shinnie, Dr. R. Lessing and other members, and it unanimously adopted a motion to form a Council to consist of, until a Constitution had been prepared and approved, the nine members elected by the Division to the Executive of the national Society. A draft Constitution was prepared by the provisional Council, and was submitted to a further meeting of the Division on 11th December, when, with minor amendments, it was adopted.

Dr. A. J. Shinnie was elected Chairman of the provisional Council, and Mr. J. J. Matthews, Hon. Secretary.

The need for a Divisional Council in the South East is shown by the excellent attendance at the two business meetings and by the keen interest of those present. A programme of activities for the coming year is now being planned.

J. J. MATTHEWS, *Hon. Secretary*.

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, officers, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given in next column.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal *Smokeless Air*, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 15s. 0d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations:

Less than 25,000 ..	3	guineas
25,000 to 50,000 ..	4	,,
50,000 to 75,000 ..	5	,,
75,000 to 100,000 ..	7	,,
100,000 to 250,000 ..	12	,,
250,000 to 500,000 ..	18	,,
Over 500,000 ..	30	,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 12 guineas for members appointing two Representatives ; not less than 7 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for *Smokeless Air* and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows:

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides and Film Strips

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages. Film strips are at present in course of preparation.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available for loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to 30 Grosvenor Place by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available: (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) Prize-winning photo-colour poster 30 in. × 20 in. Price 6d. each. (3) New Pictorial chart primarily for school use. "These are the Things that Smoke Does," 30 in. × 20 in. Price 1s. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's "Guide to Publications" will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising over 250 subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society) The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name).....*of* .....
(address).....(description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of 30 Grosvenor Place in the City of Westminster, that for a period of seven years from the first day of.....,195....., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of.....195.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....
(Signature).....

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1953

Year ended June 30th, 1952	INCOME	£	s.	d.	£	s.	d.
£							
5,439	Subscriptions				5,390	6	2
113	Sale of Literature				221	18	5
50	Repayment of Income Tax				61	10	2
	£						
	745 Conference Fees—Portsmouth, 1952	887	8	0			
	593 *Less*—Expenses and Printing	491	7	10			
152					396	0	2
44	Sundry Receipts				24	4	0
	DIVIDENDS FROM INVESTMENTS, etc.						
6	Commercial Union Assurance Co. Ltd.				6	15	0
6	British Transport				5	17	0
8	Post Office Savings Bank				8	8	6
13	Interest—Manchester and Salford Savings Bank				14	0	3
	Defence Bonds—Interest and Premium				18	4	9
£5,831					£6,147	4	5

Year ended June 30th, 1952	EXPENDITURE	£	s.	d.	£	s.	d.
£							
2,596	Salaries and Fees				2,835	9	1
512	Rent, Rates, Gas, Water and Heating				515	2	11
150	Office Supplies and Stationery				177	8	11
41	Travelling Expenses				34	6	8
606	General Expenses, Postages, Telephone and National Insurance				690	6	8
275	Divisional Expenses				310	0	0
	£						
1,207	Printing *Smokeless Air*	1,231	2	9			
820	*Less*—Receipts from Advertisements	612	10	0			
387					618	12	9
273	Printing and Publishing Booklets, etc.				431	15	6
90	Staff Pension Scheme				119	4	0
23	Furniture and Fittings				25	5	4
878	Excess of Income over Expenditure				389	12	7
£5,831					£6,147	4	5

Balance Sheet, June 30th, 1953

£		£	s.	d.	£	s.	d.
	SURPLUS ACCOUNT						
1,186	Balance as at June 30th, 1952	2,064	8	7			
	Add—Transfer Defence Bond Fund Balance						
878	June 30th, 1952	576	15	1			
2,064		2,641	3	8			
	Add—Excess of Income over Expenditure	389	12	7			
					3,030	16	3
	CONFERENCE, 1953—GLASGOW—						
	£						
	327 Fees received in advance	352	16	0			
	26 *Less*—Printing	28	2	0			
301					324	14	0
2	Subscription in advance				1	0	0
577	Defence Bond Fund	576	15	1			
	Less—Transfer to Surplus Account	576	15	1	–	–	–
£2,944					£3,356	10	3

£		£	s.	d.	£	s.	d.
	INVESTMENTS (General)						
	Commercial Union Assurance Co.—						
206	£25 Stock at Cost	205	11	0			
	British Transport—						
279	£371 9s. 10d. 3% Guaranteed Stock 1978/88	279	5	11			
338	Post Office Savings Bank	845	19	0			
529	Manchester and Salford Savings Bank	543	2	11			
577	Defence Bonds (3½%)	580	0	0			
1,929					2,453	18	10
1,005	Cash at Bank and in Hand (General)				892	11	5
10	Electricity Deposit				10	0	0
£2,944					£3,356	10	3

Audited and found correct.
ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

August 17th, 1953.

NATIONAL SMOKE ABATEMENT SOCIETY

Summary of Divisional Accounts

Division	*Year Ended*	*Commencing Balance* £ s. d.	*Grants* £ s. d.	*Other Income* £ s. d.	*Total* £ s. d.	*Expenditure* £ s. d.	*Closing Balance* £ s. d.
Scotland	31.3.53	256 9 2	100 0 0	(*a*) 82 7 11	438 17 1	(*a*) 163 13 4	275 3 9
North West	31.3.53	107 12 2	65 0 0	—	172 12 2	62 6 7	110 5 7
North East (*b*)	31.5.53	97 7 2	—	—	97 7 2	—	97 7 2
Yorkshire	30.6.53	13 8 10	85 0 0	—	98 8 10	45 7 9	53 1 1
West Midlands	30.6.53	*Dfct. 6 6*	40 0 0	—	39 13 6	41 10 5	*Dfct. 1 16 11*
East Midlands	31.3.53	6 19 9	20 0 0	—	26 19 9	25 11 4	1 8 5
Total		481 10 7	310 0 0	82 7 11	873 18 6	338 9 5	535 9 1

NOTES

(*a*) Includes fees and expenses for Conference and Firemen's Classes.

(*b*) Activities curtailed.

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1953

* Denotes Covenant Subscriber

Scottish Division

	£.	s.	d.
Aberdeen Corporation	12	12	0
Airdrie Corporation	4	4	0
Ardrossan Corporation	3	3	0
Ayr County Council	5	0	0
Ayr Corporation	3	3	0
Barrhead Corporation	3	3	0
British Electricity Authority—			
South East Scotland Division	10	10	0
South West Scotland Division	10	10	0
Clackmannan County Council	3	3	0
Coatbridge Corporation	4	4	0
Currie, T.S.		15	0
Dumbarton Corporation	3	3	0
Dundee Corporation	12	12	0
Dunfermline Corporation	4	4	0
East Kilbride Development Corporation	7	7	0
Edinburgh Corporation	21	0	0
Edward, J.	2	2	0
Falconer, Mrs. J.		15	0
Falkirk Corporation	4	4	0
Glasgow Corporation	30	0	0
Glasgow Tree Lovers' Society	1	1	0
Glasgow Women Citizens' Association	1	1	0
Grangemouth Corporation	3	3	0
Grattidge, H. H.		15	0
Greenock Corporation	7	7	0
Hamilton Corporation	4	4	0
Hawick Corporation	3	3	0
Heriot-Watt College	17	1	0
Howden, James & Co., Ltd.	12	12	0
*Hughes, H. S.	1	1	0
Inverness County Council	5	5	0
Inverness Corporation	4	4	0
Irvine Corporation	3	3	0
Johnstone Corporation	3	3	0
Jones, Samuel & Co., Ltd.	5	5	0
Keillor, R.D.	1	1	0
Kilmarnock Corporation	4	4	0
Kilsyth Corporation	3	3	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	3	3	0
Lanark County Council	21	0	0
Loanhead Corporation	3	3	0
Macaulay, J. M.		10	6
Macmillan, A. M.	1	0	0
McCallum & Craigie Ltd.		10	6
Motherwell & Wishaw Corporation	4	4	0
Musselburgh Corporation	2	2	0
Paisley Corporation	7	7	0
Perth Corporation	4	4	0
Port Glasgow Corporation	2	2	0
Ramsay, Sir James Douglas (1952)	1	1	0
(1953)	1	1	0
Renfrew Corporation	3	3	0
*Ritchie, A. W. (1952)	1	0	0
(1953)	1	0	0
Ritchie, G. B.		15	0
Roberton, Bailie V.	1	1	0
Rothesay Corporation	3	3	0
Royal Sanitary Association of Scotland	1	1	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Association	2	2	0
Scottish Gas Board	73	10	0
Scott Park, Dr. and Mrs. S. D.	1	1	0
Smith, Mrs. Brownhill	1	1	0
South East Scotland Electricity Board	10	10	0
South West Scotland Electricity Board	10	10	0
Waldie, James & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		15	0

Northern Ireland Division

	£	s.	d
Belfast Corporation	5	5	0
Londonderry Corporation	2	2	0
Young, Miss A. C.		15	0

North Western Division

Accrington Corporation	5	5	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.	1	0	0
Altrincham Corporation	3	3	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous	1	1	0
Ashton, Bros. & Co., Ltd.	2	2	0
Ashton-under-Lyne Corporation	5	5	0
Atherton U.D.C.	3	3	0
Audenshaw U.D.C.	3	3	0
Bacup Corporation	3	3	0
Barlow, D. M.		10	6
Barrow-in-Furness Corporation	4	4	0
Baxendale & Co., Ltd.	2	2	0
Bayes, Councillor Mrs. M. (1952)	3	3	0
(1953)	3	3	0
*Beard, E.	2	2	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	12	12	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	10	10	0
Blackpool Corporation	12	12	0
Bolton Corporation	10	10	0
Bootle Corporation	6	6	0
Bredbury & Romiley U.D.C.	3	3	0
Breifield U.D.C	3	3	0
British Electricity Authority—			
Merseyside and N. Wales Division	10	10	0
North Western Division	10	10	0
British Insulated Callender's Cables Ltd	7	7	0
Bruan, G. T.	1	5	0
Burnley Corporation	7	7	0
Burnley R.D.C.	4	4	0
Bury Corporation	5	5	0
Buxton Corporation	3	3	0
Chadderton U.D.C.	4	4	0
Cheadle and Gatley U.D.C.	3	3	0
Church U.D.C.	3	3	0
Clegg, H.		17	0
Clitheroe Corporation	3	3	0
Colne Corporation	5	5	0
Cooper, Miss I.	1	1	0
Coulthard, Dr. A.		5	0
Coulthard, Miss D.		10	0
Craven, W. D. C. (1952)	2	2	0
(1953)	2	2	0
Crewe Corporation	5	5	0
Crompton U.D.C.	3	3	0
Darwen Corporation	4	4	0

	£	s.	d
Davies, D. E.		15	0
Davies, L.		10	6
Denton U.D.C.	2	2	0
Droylsden U.D.C.	4	4	0
*Duguid, S. N.	3	3	0
Eccles Corporation	4	4	0
Ellesmere Port U.D.C.	3	3	0
Failsworth U.D.C.	3	3	0
Farnworth Corporation	3	3	0
Fildes, Mrs. A.		15	0
*Forrester, R. E.	1	0	0
Franklin, N. J.		10	6
Gandy, Mrs. L. M.		15	0
*Gavaghan, Mrs. L. A.	1	1	0
Glossop Corporation	2	2	0
Great Harwood U.D.C.	3	3	0
Griffel, Dr. W.		10	6
Griffiths, The Misses	1	0	0
Hale U.D.C	2	12	6
Hall, E. N.		15	0
Hall & Pickles Ltd.	12	12	0
Hancock, A.	1	1	0
Hartley, G. E.		10	6
Haydock U.D.C.	3	3	0
*Hayhurst, Mr. H. and Mrs. L.	3	3	0
Hazel Grove and Bramhall U.D.C.	3	3	0
*Herbert, J. L.		10	6
Hetherington, H.		15	0
Heywood Corporation	4	4	0
Hope, S.	1	1	0
Horwich U.D.C.	3	3	0
Howarth, R. W.		15	0
Hoylake U.D.C.	4	4	0
*Hughes, W. R.	1	1	0
Huyton-with-Roby U.D.C.	4	4	0
Hyde Corporation	4	4	0
Irlam U.D.C.	3	3	0
Jackson, C. L.	1	1	0
Jewsbury, S.		15	0
Johnston, S.		5	0
Jones, P. G.		15	0
Kay, Miss D.		7	6
Kearsley U.D.C.	2	2	0
*Keddie, Dr. J. T. Chalmers		15	0
*Kennedy, W. B.		10	6
*Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	52	10	0
Lancaster Corporation	3	3	0
Lane, Mrs. W.	1	1	0
Langford, A. S.		10	6
*Lee, Sir Kenneth (1952)	1	0	0
(1953)	1	0	0
Lees, Miss M.	1	1	0
Leigh Corporation	4	4	0
Leyland U.D.C.	2	2	0
Littleborough U.D.C.	3	3	0
Liverpool Corporation	26	5	0
Longdendale U.D.C.	3	3	0
Macclesfield Corporation	4	4	0
Manchester Corporation	42	0	0
Marple U.D.C.	3	3	0
Mather, L. E.	2	2	0
*Mather, W. L.	1	0	0
Mather & Platt Ltd.	12	12	0
Matthews, W.	1	0	0
McKellen, N.	1	1	0
MacWilliam, Dr. H. H.		15	0
Melland, Mrs. W.	1	1	0
Merseyside and North Wales Electricity Board	10	10	0
Metropolitan-Vickers Electrical Co. Ltd.	8	8	0
Middleton Corporation	4	4	0
Middlewich U.D.C.	2	2	0
Mitchell, L. A.	1	1	0
Morrison, Dr. J.	2	2	0
Nelson Corporation	4	4	0
Newton-le-Willows U.D.C.	3	3	0
Northern Gas Board—Carlisle	1	11	6
Penrith		10	6
Workington	1	11	6
North Western Electricity Board	12	12	0
North Western Gas Board	105	0	0
Northwich U.D.C.	2	2	0
Oldham Corporation	12	12	0
Ormskirk U.D.C.	2	2	0
Padden, T. J.		10	6
Padiham U.D.C.	3	3	0
Parker, H.	1	0	0
Paterson, N.	1	1	0
Pike, Miss I. M.	1	0	0
*Polding, W. W.		10	6
Pontefract Bros.	2	2	0
Preston Corporation	12	12	0
Rawtenstall Corporation	3	3	0
Refuge Assurance Co.	12	12	0
Reynolds, Miss M.		10	6
Rishton U.D.C.	2	2	0
Robey, J. C.		10	6
*Robinson, Alderman J.	1	0	0
Rochdale Corporation	7	7	0
Royton U.D.C.	3	3	0
St. Helens Corporation	13	13	0
Sale Corporation	4	4	0
Salford Corporation	12	12	0
Sandbach U.D.C.	3	3	0
Sanderson, R. C.	1	1	0
*Saunders, P. H.	1	0	0
*Scott, Mrs. A. O.	1	0	0
Shamash, E.	4	0	0
Sharp, R.		10	6
Shaw, Mrs. M.		15	0
Shaw, R. D.		15	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	7	7	0
Simpson & Godlee Ltd.	7	7	0
*Smith, H.	2	2	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation	3	3	0
Stockport Corporation	12	12	0
Stretford Corporation	5	5	0
*Swale, W. E.		10	6
Swinton and Pendlebury Corporation	3	3	0
Taylor, C. P.		15	0
*Taylor, H. F.		12	6
Taylor, Miss M. R.	1	0	0
Thornton Cleveleys U.D.C.	2	2	0
*Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd.	5	14	6
Unsworth J.	2	2	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation	12	12	0
Walton, T.		10	6
Warrington Corporation	7	7	0
Warrington R.D.C.	2	2	0
*Wells, Dr. N. H.		5	0
Westminster Dredging Co. Ltd.	2	2	0
West's Gas Improvement Co. Ltd.	12	12	0
Whiston R.D.C.	1	1	0
Widnes Corporation	4	4	0
Wigan Corporation	8	8	0
Williamson, J. G.		15	0
Wilmslow U.D.C.	2	2	0
Winder, F.		15	0
Woodward, W.	1	1	0
Workington Corporation	4	4	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	5	5	0

North East Division

	£	s.	d
*Angus, Col. E. G.	3	3	0
Ashington U. D.C.	4	14	6
Bedlingtonshire U.D.C.	4	4	0
Berwick-on-Tweed Corporation	3	3	0
Billingham U.D.C.	3	3	0
Blaydon U.D.C.	4	4	0
Brandon and Byshottles U.D.C.	3	3	0
British Electricity Authority—North Eastern Division	10	10	0
Castle Ward R.D.C.	3	3	0

	£	s.	d.
Chester-le-Street R.D.C. (1952)	2	2	0
(1953)	4	4	0
Chester-le-Street U.D.C.	3	3	0
Consett U.D.C.	3	3	0
Crook and Willington U.D.C.	4	4	0
Darlington Corporation	7	7	0
Durham R.D.C.	4	4	0
Eston U.D.C.	4	4	0
Felling U.D.C.	4	4	0
*Gandy, Mr. and Mrs.	1	10	0
Gateshead Corporation	10	10	0
Glaister, W. W.	1	14	0
Gosforth U.D.C.	2	2	0
Green, Miss E.		15	0
Hartlepool Corporation	3	3	0
Hebburn U.D.C.	3	3	0
Hetton U.D.C.	3	3	0
Imperial Chemical Industries Ltd. (Billingham Division)	12	12	0
*Isaac, P. C. G.	1	1	0
Jarrow Corporation	4	4	0
Lanchester R.D.C.	3	3	0
Longbenton U.D.C.	2	2	0
Middlesbrough Corporation	10	10	0
Newburn U.D.C.	2	2	0
Newcastle upon Tyne Corporation	21	0	0
Nicol, W. T.		10	6
North Eastern Electricity Board	10	10	0
Northern Gas Board—Blyth	1	1	0
,, Darlington	3	3	0
,, Hexham		10	6
,, Middlesbrough	4	4	0
,, Newcastle on Tyne	21	0	0
,, Stockton-on-Tees	4	4	0
,, Sunderland	4	4	0
Power Gas Corporation	10	10	0
Prudhoe U.D.C.	3	3	0
Redcar Corporation	4	4	0
Ryton U.D.C.	3	3	0
Saltburn & Marske-by-the-Sea U.D.C.	2	2	0
Seaham U.D.C.	6	6	0
Sedgefield R.D.C.	4	4	0
Skelton and Brotton U.D.C.	3	3	0
South Shields Corporation	12	12	0
Stanley (Co. Durham) U.D.C.	5	5	0
Stockton-on-Tees Corporation	5	5	0
Sunderland Corporation	12	12	0
Thornaby-on-Tees Corporation	3	3	0
Wallsend Corporation	5	5	0
Washington U.D.C.	3	3	0
West Hartlepool Corporation	6	6	0
Whickham U.D.C.	2	2	0

Yorkshire Division

Adwick-le-Street U.D.C.	3	3	0
Aireborough U.D.C.	3	3	0
Ambler, T. & Sons.	1	1	0
Bacon, N. P.	1	0	0
Batley Corporation	4	4	0
Beaumont, J. W.		10	6
Bingley U.D.C.	3	3	0
Bray, G. & Co.	12	12	0
Bridlington Corporation	2	2	0
Brighouse Corporation	4	4	0
British Electricity Authority—Yorkshire Division	10	10	0
*Brown, G. L.	2	2	0
*Carpenter, V. A.		10	6
Castleford U.D.C.	4	4	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, W.		15	0
Conisbrough U.D.C.	3	3	0
Darton U.D.C.	3	3	0
Dearne U.D.C.	3	3	0
Denby Dale U.D.C. (1952)	2	2	0
(1953)	3	3	0
Dewsbury Corporation	5	5	0
Doncaster Civic Trust	2	0	0
Doncaster Corporation	5	5	0
Doncaster R.D.C.	5	5	0
Givens, W.		15	0
Goldstern, W.		10	6
Goodfellow, J. (1952)		13	2
(1953)		15	0
Graucob, F. Ltd.	2	2	0
Halifax Corporation	7	7	0
*Harris, J.	1	2	0
Harrogate Corporation	3	3	0
Hemsworth R.D.C.	5	0	0
Hemsworth U.D.C.	3	3	0
Hepton R.D.C.	3	3	0
Holdsworth, R. Y.	1	1	0
Holmes, W. C. & Co. Ltd.	12	12	0
Holmfirth U.D.C.	3	3	0
Horbury U.D.C.	3	3	0
Horsforth U.D.C.	3	3	0
Huddersfield Corporation	10	10	0
Hull Corporation	18	18	0
Hunter, K. D.	1	0	0
Jervis, Dr. J. Johnstone	1	1	0
Keighley Corporation	2	2	0
Leeds Corporation	15	15	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		15	0
*Marshall, G. C.		10	0
Meltham U.D.C.	3	3	0
Mexborough U.D.C.	3	3	0
Morley Corporation	4	4	0
Morton, Mrs. D. F. (1952)		15	0
(1953)		15	0
North Eastern Gas Board	42	0	0
Ossett Corporation	3	3	0
Otley U.D.C.	3	3	0
Pontefract Corporation	3	3	0
Pudsey Corporation	5	0	0
Queensbury & Shelf U.D.C.	3	3	0
Rawmarsh U.D.C.	2	2	0
Rothwell U.D.C.	3	3	0
Royston U.D.C.	3	3	0
Rushton J. L.,	1	1	0
Scarborough Corporation	2	2	0
Schofield, W. B.	1	1	0
Scriven, Miss J.		15	0
*Severs, J. S.	2	0	0
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	4	4	0
Spenborough U.D.C.	4	4	0
Stanley (Yorks.) U.D.C.	3	3	0
Steam Storage Co. Ltd.	1	1	0
Stocksbridge U.D.C.	3	3	0
Swinton U.D.C.	2	2	0
Tate, E.		15	0
United Steel Companies Ltd	50	0	0
Wakefield Corporation	6	6	0
Wakefield R.D.C.	3	3	0
Ward, A.		15	0
Warwick, H.	1	1	0
West Riding of Yorkshire Regional Smoke Abatement Committee	2	2	0
Wombwell U.D.C.	3	3	0
*Wood, F. T.	1	1	0
Worsborough U.D.C.	3	3	0
Wortley R.D.C.	4	4	0
York Corporation	5	5	0
Yorkshire Electricity Board	10	10	0

West Midlands Division

Best, J. K.		15	0
Bilston Corporation	5	5	0
Brierley Hill U.D.C.	5	5	0
British Electricity Authority—Midlands Division	10	10	0
British Reinforced Concrete Eng. Co. Ltd.	50	0	0
Brownhills U.D.C.	2	2	0
Burton-on-Trent Corporation	4	4	0

	£	s.	d.
Cannock U.D.C.	3	3	0
Coventry Corporation	18	18	0
Danks, E. & Co. (Oldbury) Ltd.	12	12	0
Darlaston U.D.C.	3	3	0
Dudley Corporation	5	5	0
Gibbons Bros., Ltd.	15	15	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Grimmett, P. H. G.		10	6
Halesowen Corporation	4	4	0
Hall, G. R.		15	0
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		15	0
Kidderminster Corporation	3	3	0
Leamington Spa Corporation	4	4	0
Manger's Salt Works Ltd.	1	1	0
Meriden R.D.C.	4	4	0
Midlands Electricity Board	10	10	0
Midlands Joint Advisory Council for Smoke Abatement	5	5	0
Moore, J.		15	0
Morrin, Councillor J. M.	2	2	0
Newcastle-under-Lyme Corporation	5	5	0
Nuneaton Corporation	5	5	0
Oldbury Corporation	5	5	0
Pointon, F. T., Jnr.		10	6
*Pringle, Dr. E.		15	0
*Pringle, Dr. J. E.	1	1	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	4	4	0
Rugeley U.D.C.	3	3	0
Sedgley U.D.C.	3	3	0
*Simpson, T. S.		15	0
Smart, R. C.		10	0
Smethwick Corporation	7	7	0
Stafford Corporation	1	10	0
Staffordshire County Council	10	10	0
Stoke-on-Trent Corporation	18	18	0
Stone R.D.C.	3	3	0
Taylor, Mr. and Mrs. C. B.	2	2	0
Thomas, Dr. G. J.	1	0	0
Wakelin, E. N.	1	0	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	12	12	0
Warwickshire County Council	18	18	0
Wednesbury Corporation	3	3	0
Wellington (Salop) U.D.C.	3	3	0
West Bromwich Corporation	6	6	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	12	12	0
Wright, J.	1	10	0

East Midlands Division

Alfreton U.D.C.	3	3	0
*Barash, Dr. M.	1	1	0
Basford R.D.C.	4	4	0
Beeston and Stapleford U.D.C.	4	4	0
Belper U.D.C.	3	3	0
Blackwell R.D.C.	4	4	0
Bolsover U.D.C.	3	3	0
Boston Corporation	3	3	0
British Electricity Authority—East Midlands Division	10	10	0
*Brown, J. A.	1	1	0
Cambridge Corporation	1	1	0
Chesterfield Corporation	5	5	0
Chesterfield R.D.C.	7	7	0
Clowne R.D.C.	3	3	0
Coalite & Chemical Products Ltd.	52	10	0
Collier, Dr. W. A. L.		10	6
Corby U.D.C.	2	2	0
Dearden, J.		15	0
Derby Corporation	10	10	0
Derbyshire County Council	12	12	0
Dronfield U.D.C.	2	2	0
Earnshaw, G. H.		15	0
Eastern Electricity Board	10	10	0
East Midlands Electricity Board	10	10	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	3	3	0
Gainsborough U.D.C.	3	3	0
Great Yarmouth Corporation	4	4	0
Gurney, J.	1	1	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	4	4	0
Ilkeston Corporation	4	4	0
Ipswich Corporation	10	10	0
Irthlingborough U.D.C.	3	3	0
Kettering Corporation	4	4	0
King's Lynn Corporation	4	4	0
Kirkby-in-Ashfield U.D.C.	3	3	0
Lewis, Mrs. A.B.	1	0	0
Lincoln Corporation	7	7	0
Long Eaton U.D.C.	4	4	0
Loughborough Corporation	4	4	0
Lowestoft Corporation	3	3	0
Low Temperature Coal Distillers Association	7	7	0
Mansfield Corporation	5	5	0
Market Harborough U.D.C.	3	3	0
McDonald, J. D.		15	0
McHugh, F. G.		15	0
Micklethwait, R. G.		10	0
Newark Corporation	2	2	0
Nottingham Corporation	35	0	0
Orr, J. H.			
Orr, J. H.		15	0
Peterborough Corporation	5	5	0
Rushden U.D.C.	2	2	0
Scopes, F. V. (1952)	1	1	0
(1953)	1	1	0
Smith, F. V. S.	1	0	0
Southwell R.D.C.	4	4	0
Staveley U.D.C.	3	3	0
Stewarts & Lloyds Ltd.	50	0	0
Sutton-in-Ashfield U.D.C.	3	3	0
Swadlincote U.D.C.	3	3	0
Tosic, J.		10	0
*Turner, T. Henry		10	6
Wigston U.D.C.	3	3	0
Woodcock, F. Huntly	1	5	0
Worksop Corporation	3	3	0
Worksop R.D.C.	3	3	0

South West Division

Abercarn U.D.C.	2	2	0
Aberdare U.D.C.	4	4	0
Abertillery U.D.C.	3	3	0
Bedwas and Machen U.D.C.	3	3	0
Blampied, F. C.		15	0
*Bradshaw, Miss G.		5	0
Bristol Corporation	15	15	0
Bristol and District Regional Smoke Abatement Council	4	4	0
British Electricity Authority—			
South Wales Division	10	10	0
South Western Division	10	10	0
Buzzacott, J. O.	2	2	0
Caerphilly U.D.C.	2	2	0
*Campbell, Dr. A. F.	1	1	0
Cardiff Corporation	10	10	0
Cardiff R.D.C.	4	4	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	5	5	0
Clarke, J. A.	1	5	0
Coulthurst Mrs. A.		15	0
Crook, S. C.	1	1	0
Cwmbran U.D.C.	3	3	0
Fry, Miss A.	1	1	0
Gellygaer U.D.C.	4	4	0
Gloucester Corporation	5	5	0
Ilfracombe U.D.C.	3	3	0
Kingswood U.D.C.	3	3	0
Llanelly Corporation	4	4	0
Llantrisant and Llantwit Fadre R.D.C.	4	4	0
Mynyddislwyn U.D.C.	2	2	0
Neath Corporation	4	4	0
Newport Corporation	12	12	0

	£	s.	d.
Pontypool U.D.C.	4	4	0
Pontypridd U.D.C.	4	4	0
Poole Corporation	2	2	0
Portishead U.D.C.	3	3	0
Port Talbot Corporation	4	4	0
Seale, Mrs. I. L.		15	0
Shawyer, A. F.	1	0	0
Silburn, Mrs. E.	1	1	6
Sodbury R.D.C.	4	4	0
South Wales Electricity Board	10	10	0
South Western Electricity Board	10	10	0
South Western Gas Board	36	15	0
Swansea Corporation	3	3	0
Swindon Corporation	5	5	0
Thomas, E.		10	6
Thornbury R.D.C.	4	4	0
Wales Gas Board	21	0	0
Warmley R.D.C.	3	3	0
Weston-super-Mare Corporation (1952)	2	2	0
(1953)	2	2	0
Women's Gas Federation		10	0

South East Division

	£	s.	d.
Acton Corporation	6	6	0
Acworth, A. W.	1	0	0
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0
Aluminium Construction Ltd.	5	14	0
Andover Corporation	2	2	0
Ascot Gas Water Heaters Ltd.	12	12	0
Associated Coal and Wharf Companies Ltd.	7	7	0
Atkinson, Mrs. M.	1	0	0
Aylesbury Corporation	3	3	0
Banbury Corporation	3	3	0
Barber, S. S.		15	0
Barking Corporation	10	10	0
Barnes Corporation	4	4	0
Battersea Corporation	12	12	0
Beard, J. R.	1	1	0
Bennett, M. J.	1	10	0
Bermondsey Corporation	5	5	0
Bexley Corporation	7	7	0
Billericay U.D.C.	4	4	0
Binderman, Mrs. A. (1952)		6	0
(1953)		6	0
Blanchard, Mrs. S. H.	1	0	0
Bligh, Mrs. M. F.		15	0
*Bond, Miss E. F.		15	6
Boult, Miss O.	2	2	0
Bournemouth Corporation	2	2	0
Brentford and Chiswick Corporation	5	5	0
Brighton Corporation	10	10	0
British Electrical Development Assn.	125	0	0
British Electricity Authority	206	0	0
,, Eastern Division	10	10	0
,, London Division	10	10	0
,, South Eastern Division	10	10	0
,, Southern Division	12	12	0
British Iron and Steel Federation	105	0	0
British Medical Association	12	12	0
Bromley Corporation	5	5	0
Browne, Dr. D. Warren	1	1	0
Bryant, Miss E. E.		7	6
Bryant, G.	1	0	0
Buist, Commander C.	11	11	0
Cable Makers' Association	12	12	0
Caller, Dr. S.		10	6
Camberwell Corporation	12	12	0
Capper-Johnson, Dr. L.		10	6
Carshalton U.D.C.	1	1	0
*Chantler, P.	3	3	0
Charrington, Gardner, Lockett & Co. Ltd.	7	7	0
Chatham Corporation	4	4	0
Checker, M.	1	0	0
Cheshunt U.D.C.	3	3	0
Chislehurst and Sidcup U.D.C.	7	7	0
Clacton U.D.C.	3	3	0
Clarke, Dr. R. T. V.	1	10	0
Clinch, H. G.	1	1	0
Coal Utilization Council	15	15	0
Cooke, B.		15	0
Crayford U.D.C.	4	4	0
Croydon Corporation	4	4	0
Dagenhan Corporation	3	3	0
Dartford Corporation	4	4	0
Dartford R.D.C.	4	4	0
Darwen, J. (1952)	1	1	0
(1953)	1	1	0
Dover Corporation	4	4	0
Duncum, Mrs. B. M.		10	6
Dunstable Corporation	3	3	0
Ealing Corporation	2	2	0
Eastern Gas Board	42	0	0
East Ham Corporation	12	12	0
Eastleigh Corporation	3	3	0
*Eaton, Dr. F. J.	2	0	0
Edmonton Corporation	5	5	0
Edwards, Dr. C.		15	0
Electrical Assen. for Women	12	12	0
*Elsworthy, J. G.	1	11	6
Erith Corporation	4	0	0
Essex, K. B.		10	0
Evans, D. H. & Co., Ltd.	7	7	0
Feltham U.D.C.	4	4	0
Finchley Corporation	5	5	0
Finsbury Corporation	5	5	0
*Foss, Mrs, A.		10	6
Fox, J.	1	1	0
Franklin, C. Ltd. (1952)	2	2	0
(1953)	2	2	0
Friern Barnet U.D.C.	4	4	0
Fry, Miss A. R.	1	0	0
Fry, Miss M.	1	0	0
Fulham Corporation	15	15	0
*Gamlen, R. E.	1	11	6
*Gandy, Miss R. L.	1	1	0
Gas Council	250	0	0
General Electric Co., Ltd.	12	12	0
*Gillison, Dr. J. A.	1	1	0
Goodchild, C. R.		10	6
Goodeve, Sir C. F.	2	2	0
Gosport Corporation	1	1	0
Grace, Mrs. E.		15	0
Gravesend Corporation	3	3	0
Greenwich Corporation	3	3	0
Greenwood, T. A. S.		14	6
Guildford Corporation	4	4	0
Gummer, R. H.	1	1	0
Hackney Corporation	12	12	0
Hales, J. S.	2	2	0
*Hall, C. A.	1	5	0
Halsted, V.	1	1	0
Hammersmith Corporation	12	12	0
*Hampson, G. B.		10	6
Hampstead Corporation	5	5	0
Hardcastle, Rev. H. R.		5	0
Harrold Leather Mfg. Co., Ltd.	1	1	0
Havant & Waterloo U.D.C.	4	4	0
Hayes & Harlington U.D.C.	5	0	0
Heston & Isleworth Corporation	7	7	0
Hitchin U.D.C.	3	3	0
Hodgkinson, J. (Salford) Ltd.	7	7	0
Holborn Corporation	2	2	0
Hopthrow, Brig. H. E.	1	1	0
Horder, Lord	1	1	0
Hornchurch U.D.C.	12	12	0
Horsham U.D.C.	3	3	0
Hove Corporation	5	5	0
Hurseal Ltd.	7	7	0
*Hutton, Dr. K. B.		10	6
Hyland, A.	1	0	0
Ideal Boilers & Radiators Ltd.	7	7	0
Ilford Corporation	12	12	0
Institute of Fuel	15	15	0
Institution of Electrical Engineers	12	12	0
James, B. W.		15	0

	£	s.	d.
Johnson, Alderman A.	2	2	0
Jones, Griffith		15	0
Joules, Dr. H.	1	1	0
Kensington Corporation	3	3	0
Kingston-on-Thames Corporation ..	4	4	0
Knight, R. P.		15	0
Lambeth Corporation	1	1	0
Lee, S. A.	1	5	0
*Lessing, Dr. R.	1	1	0
Leveson Gower, Miss V.		15	0
Lewisham Corporation	5	5	0
Leyton Corporation	3	3	0
Liptak Furnace Arches Ltd.	2	2	0
Lister, B. S.	2	0	0
Littlehampton U.D.C.	1	11	9
London (City), Corporation of (1952)	26	5	0
(1953)	26	5	0
London County Council	31	10	0
London Electricity Board	10	10	0
London and Home Counties Smoke Abatement Advisory Council (1952)	4	4	0
(1953)	4	4	0
Luton Corporation	2	2	0
MacDermott, N.		10	6
*McGhie, A. T. S.		15	0
Maidenhead Corporation	3	3	0
Malden & Coombe Corporation ..	3	3	0
Margolis, A. E.		15	0
Mathias, Mrs. F. V. L.		15	0
Mathias, J.	1	1	0
Melland, B.	1	10	0
Merton & Morden U.D.C.	5	5	0
Mitcham Corporation	2	2	0
Morgan, Miss G.	1	1	0
*Munro, Mrs. M. A.	1	1	0
National Coal Board	157	10	0
Nonhebel, G.	1	1	0
Northfleet U.D.C.	3	3	0
Ongar R.D.C.	3	3	0
Orpington U.D.C.	5	5	0
Oxford Corporation	10	10	0
Oxford Preservation Trust (1952)	1	1	0
(1953)	1	1	0
Paddington Corporation	5	5	0
Paine, A. E.		15	0
Parry, M.		15	0
Penge, U.D.C.	4	4	0
Pollard, R. S. W.		15	0
Pollitzer, E.	3	3	0
Portsmouth Corporation	5	5	0
Poston, Rev. R. C.		15	6
Procter, H.		5	0
Radiation Ltd.	12	12	0
Radioviser Parent Ltd.	7	7	0
Railway Executive	150	0	0
Rathbone, P. R.		10	6
Rayner, E. T.	2	0	0
Reed, J. B.	1	11	6
Reigate Corporation	1	1	0
Rheostatic Company Ltd.	2	2	0
Rhondda, Lady		15	0
Richards, Dr. H.		10	6
*Roberts, J. M.		15	0
*Robinson, Mrs. E.	2	2	0
Rochester Corporation	4	4	0
Romford Corporation	5	5	0
*Roper, Captain R.		10	6
Ryan, J.	1	0	0
St. Marylebone Corporation	7	7	0
St. Pancras Corporation	5	5	0
Salmon, S. A.		15	0
Samual, Viscount and Lady	1	1	0
Sanitary Inspectors' Association ..	12	12	0
Simon, Professor F. E.	1	1	0
Sittingbourne & Milton U.D.C. ..	3	3	0
Slough Corporation	5	5	0
*Smith, D. V. H.	2	2	0
Smith, Sir Ernest	2	2	0
Snith & Wellstood Ltd.	1	1	0
Snowden, H. L.		15	0
Solid Smokeless Fuels Federation ..	52	10	0
Southall Corporation	5	5	0
Southampton Corporation	1	1	0
South Eastern Electricity Board ..	10	10	0
Southend-on-Sea Corporation ..	2	2	0
Southern Electricty Board	10	10	0
Southern Gas Board	36	15	0
Southgate Corporation	2	2	0
Southwark Corporation	7	7	0
Southwell, W. E.		10	6
Staines U.D.C.	4	4	0
Stepney Corporation	5	5	0
Stoke Newington Corporation ..	4	4	0
Sturtevant Engg. Co., Ltd.	2	2	0
Sugg, W. & Co., Ltd.	2	2	0
Sutton and Cheam Corporation ..	7	7	0
Swift, S.	1	1	0
*Taylor, M. Lindsay	1	1	0
Thackeray, Mrs. L. E.		5	0
Tiranti, A.		5	2
Tottenham Corporation	12	12	0
Trianco Ltd.	7	7	0
Twickenham Corporation	12	12	0
Uxbridge U.D.C.	5	5	0
Vaughan-Cowell, Lt.-Col. A. (1952)	1	1	0
(1953)	1	1	0
Des Vœux ,Mrs. M. A.	5	5	0
Wadham, Miss D.	1	0	0
Walthamstow Corporation	12	12	0
Wanstead & Woodford Corporation	5	5	0
Ward, Dr. F. A. B.	2	10	0
Watford Corporation	5	5	0
Watford R.C.D. .. (1952)	2	2	0
(1953)	4	4	0
*Watkins, D. V.	1	0	0
Wembley Corporation	10	10	0
West Ham Corporation	1	1	0
Westminster City Council	21	0	0
White, Dr. H. D. J.	1	5	6
Wicksteed, J. H...		10	0
Wilkinson, J. R.		15	0
Willesden Corporation	12	12	0
Wimbledon Corporation	5	5	0
Windsor Corporation	2	2	0
Windsor R.D.C... .. (1952)	2	2	0
(1953)	3	3	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	7	7	0
Women's Gas Federation	12	12	0
Woodall-Duckham Construction Co., Ltd.	12	12	0
Wood Green Corporation	2	2	0
Woolwich Corporation	3	3	0
Yiewsley & West Drayton U.D.C. ..	3	3	0

Overseas Subscriptions

Beaupre, B. (Canada)	1	1	0
Bonati, F. (Italy)		15	0
Elex, S. A. (Switzerland)	2	19	0
Griebling, R. T. (U.S.A.)	*Exchange membership*		
Jaffray, F. A. (S. Africa) (1952)	2	0	0
(1953)	2	0	0
Martin, P. (U.S.A.)	8	16	10
Meddows, J. C. (New South Wales) ..	2	2	0
Mills, D. V. (Sydney Autsralia) ..	1	1	0
Reif, A. E. (U.S.A.)	1	1	0
Scott, H. J. (U.S.A.)	1	1	0
Vereeniging Town Cl. (S.A.)	1	1	0
Vivian, J. H. & Co., Ltd. (S.A.) ..	2	2	0
Wurts, T. C. (U.S.A.)	1	10	0
Subscriptions and donations under 5s.		10	0
Total ..	**£5,389**	**6**	**2**

AFFILIATED LOCAL AUTHORITIES

As at 3rd February, 1954
(Associates in *Italics*)

Scottish Division

Aberdeen, Airdrie, Ardrossan, *Ayr C.C.* *Ayr*, Barrhead, Clackmannan C.C., Clydebank, Coatbridge, Dumbarton, Dunbarton C.C., Dundee, Dunfermline, Edinburgh, Falkirk, Glasgow, Grangemouth, Greenock, Hamilton, Hawick, Inverness C.C., Inverness, Irvine, Johnstone, Kilmarnock, Kilsyth, Kirkcaldy, Kirkintilloch, Lanark C.C., Loanhead, Motherwell and Wishaw, Musselburgh, Paisley, Perth, *Port Glasgow*, Renfrew, Rothesay, Rutherglen, Stirling C.C., *West Lothian C.C.*

Northern Ireland Division

Belfast, *Londonderry*.

North-West Division

Abram, Accrington, Ashton-under-Lyne, Atherton, Audenshaw, Bacup, Barrow-in-Furness, *Birkenhead*, Blackburn, Blackpool, Bolton, Bootle, Bredbury, and Romiley, Brierfield, Burnley, Burnley R.D.C., Bury, Buxton, Chadderton, Cheadle and Gatley, Church, Clitheroe, Colne, Crewe, Crompton, Crosby, Cumberland C.C., Darwen, Denton, Droylsden, Eccles, Ellesmere Port, Failsworth, Farnworth, Fulwood, Glossop, Golborne, Great Harwood, Hale, Haydock, Hazel Grove, and Bramhall, Heywood, Horwich, Hoylake, Huyton-with-Roby, Hyde, Irlam, Kearsley, Lancashire C.C., Lancaster, Leigh, *Leyland*, Littleborough, Liverpool, Longdendale, Macclesfield, Manchester, Marple, Middleton, Middlewich, Nelson, Newton-le-Willows, Northwich, Oldham, Ormskirk, Padiham, Preston, Radcliffe, Rawtenstall, Rhyl, *Rishton*, Rochdale, Royton, St. Helens, Sale, Salford, Sandbach, *Southport*, Stalybridge, Stockport, Stretford, Swinton, and Pendlebury, *Thornton Cleveleys*, Urmston, Wallasey, Warrington, *Warrington R.D.C.*, Whaley Bridge, *Whiston*, Widnes, Wigan, Workington, Wrexham, Wrexham R.D.C.

North East Division

Ashington, Bedlingtonshire, Berwick-on-Tweed, Billingham, Blaydon, Brandon and Byshottles, Castle Ward, Chester-le-Street R.D.C., Chester-le-Street U.D.C., Consett, Crook and Willington, Darlington, Durham, Eston, Felling, Gateshead, Gosforth, Hartlepool, Hebburn, Hetton, Houghton-le-Spring, Jarrow, Lanchester, Longbenton, Middlesbrough, Newburn, Newcastle upon Tyne, Prudhoe, Redcar, Ryton, Saltburn and Marske-by-the-Sea, Seaham, Sedgefield, Skelton and Brotton, South Shields, Stanley, Stockton-on-Tees, Sunderland, Thornaby-on-Tees, Wallsend, Washington, West Hartlepool, Whickham.

Yorkshire Division

Adwick-le-Street, Aireborough, Batley, Bentley-with-Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisbrough, Darton, Dearne, Denby Dale, Dewsbury, Dodworth, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth R.D.C., Hemsworth U.D.C., Hepton, Holmfirth Horbury, Horsforth, Huddersfield, Hull, *Keighley*, Leeds, Meltham, Mexborough, Mirfield, Morley, North Riding C.C., Ossett, Otley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rothwell, Royston, *Scarborough*, Sheffield, Rotherham and District Smoke Abatement Committee, Shipley, Spenborough, Stanley, Stocksbridge, Swinton,

Wakefield, Wakefield R.D.C., Wombwell, Worsborough, Wortley, *York*.

West Midlands Division

Bilston, Birmingham, Brierley Hill, Brownhills, Burton-on-Trent, Cannock, Coventry, Darlaston, Dudley, Halesowen Kidderminster, Leamington Spa, Meriden Newcastle under Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby, Rugeley, Sedgley, Smethwick, *Stafford*, Staffordshire C.C., Stoke-on-Trent, Stone, Tipton, Walsall, Warwickshire C.C., Wednesbury, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Alfreton, Basford, Beeston and Stapleford, Belper, Blackwell, Bolsover, Boston, *Cambridge*, Chesterfield, Chesterfield R.D.C., Clowne, Corby, Derby, Derbyshire C.C., (Co. Planning Committee-Corporate), *Dronfield*, Eastwood, Gainsborough, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall, Ilkeston, Ipswich, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Louth, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Nottingham, *Nottinghamshire C.C.*, Peterborough, Ripley, Rushden, Scunthorpe, Southwell, Staveley, Sutton-in-Ashfield, Swadlincote, West Bridgford, Wigston, Worksop, Worksop R.D.C.

South West Division

Abercarn, Aberdare, Abertillery, Bath, Bedwas and Machen, Bristol, *Caerphilly*, Cardiff, Cardiff R.D.C., Cheltenham, Cwmbran, Ebbw Vale, Gellygaer, Gloucester, Ilfracombe, Kingswood, Llanelly, Llantrisant and Llantwit Fadre, Mountain Ash, Mynyddislwyn, Neath, Newport (Mon.), Pontardawe, Pontypool, Pontypridd, *Poole*, Portishead, Port Talbot, Sodbury, *Swansea*, Swindon, Thornbury, Tredegar, Warmley, *Weston-super-Mare*.

South East Division

Acton, Andover, Aylesbury, Banbury, Barking, Barnes, Battersea, Bedfordshire C.C., Bermondsey, Bexley, Billericay, *Bournemouth*, Brentford and Chiswick, Brighton, Bromley, Camberwell, *Carshalton*, Chatham, Chelsea, Cheshunt, Chigwell, Chislehurst and Sidcup, Clacton Crayford, *Croydon*, *Dagenham*, Dartford, Dartford R.D.C., Dover, Dunstable, Ealing, East Ham, Eastleigh, Edmonton, Elstree, Epping, Erith, *Farnborough*, Feltham, Finchley, Finsbury, Friern Barnet, Fulham, *Gosport*, Gravesend, *Greenwich*, Guildford, Hackney, Hammersmith, Hampstead, Harrow, Havant and Waterloo, Hayes and Harlington, Heston and Isleworth, Hitchin, Holborn, Hornchurch, Horsham, Hove, Ilford, *Kensington*, Kingston-on-Thames, *Lambeth*, *Lewisham*, *Leyton*, *Littlehampton*, London, City of, London C.C., *Luton*, Maidenhead, Malden and Coombe, Merton and Morden, *Mitcham*, Northfleet, Ongar, Orpington, Oxford, *Paddington*, Penge, *Portsmouth*, *Reading*, *Reigate*, Rochester, Romford, St. Albans, St. Marylebone, *St. Pancras*, Shoreditch, Shoreham-by-Sea, Sittingbourne and Milton, Slough, Southall, *Southampton*, *Southend-on-Sea*, *Southgate*, Southwark, Southwick, Staines, Stepney, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Twickenham, Uxbridge, Walthamstow, Wanstead and Woodford, Watford, Watford R.D.C., Wembley, *West Ham*, Westminster, Willesden, Wimbledon, *Windsor*, Windsor R.D.C., *Wood Green*, *Woolwich*, Yiewsley and West Drayton.

GENERAL INFORMATION AND REFERENCE SECTION

"COALITE"

REGISTERED TRADE MARK

SMOKELESS COAL

"Coalite" is the perfect fuel for the modern Inset Grate, giving maximum radiant Smokeless Heat, comfort and economy. It will laze or blaze as required but never throws out sparks or hot pieces.

"Coalite" is cheapest in the long run.

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THE LAW RELATING TO SMOKE, ETC.

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 47). Briefly, the expression " smoke " includes " soot, ash, grit and gritty particles." Provisions (s.101) that require a nuisance to be proved or enable a " best practicable means " defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that " interferes with or obstructs " the efficient working of mines or metallurgical processes.

Action may be taken with regard to smoke under common law procedure and can be used to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase " black smoke " is not used.

The smoke abatement legislation is apministered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

RECENT LOCAL LEGISLATION

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of " prior approval " of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this was followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows: those also including smokeless zone clauses being marked " *S.Z.*":

Manchester Corporation Act, 1946. *S.Z.*
City of London (Various Powers) Act, 1946.
Preston Corporation Act, 1947.
Dudley ,, ,, 1947.
Salford ,, ,, 1947. *S.Z.*
Paisley Corporation Order Confirmation Act, 1947.
Coventry Corporation Act, 1948. *S.Z.*
Darwen ,, ,, 1948.
Birmingham ,, ,, 1948.
St. Helens ,, ,, 1948.
Smethwick ,, ,, 1948.
Rochdale ,, ,, 1948. *S.Z.*
Brighton ,, ,, 1948.
Bradford ,, ,, 1949. *S.Z.*
Bolton ,, ,, 1949. *S.Z.*
Urmston ,, ,, 1949. *S.Z.*
Crewe ,, ,, 1949. *S.Z.*
Slough ,, ,, 1949.
W. Bromwich,, ,, 1949.
Fife C. C. Order Confirmation Act, 1949.
Leyton Corporation Act, 1950.
Wolverhampton Corporation Act, 1950. *S.Z.*
Kirkcaldy Burgh Extension, etc., Order Confirmation Act, 1950.
Edinburgh Corporation Order Confirmation Act, 1950. *S.Z.*
Worcester Corporation Act, 1951.

Sunderland „ „ 1951. *S.Z.*
Sutton & Cheam „ „ 1951.
Swindon „ „ 1951. *S.Z. only.*
Notts. C. Council Act, 1951.
Aidrie Corporation Order Confirmation Act, 1951.
Essex C. Council Act, 1952.
Fareham U.D. Council Act, 1952.
Kingston-upon-Hull Corporation Act, 1952.
Leamington Corporation Act, 1952.
Nottingham „ „ 1952.
Tottenham „ „ 1952. *S.Z.*
Preston Corporation Order 1952. *S.Z. only.*
Greenock Corporation Order Confirmation Act, 1952. *S.Z.*
Cheshire County Council Act, 1953.
Berkshire County Council Act, 1953.
West Bridgford U.D. Council Act, 1953. *S.Z.* only.
Oxford Corporation Act, 1953. *S.Z.* only.

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made in 1928, 1935, 1939 and 1950. The Orders, however, do not apply to Scotland. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to the atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an Inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure, penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the Inspectorate. (*See also Directory*).

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes three main lines of attack:

(i) a study of the properties and behaviour of atmospheric pollution including the systematic measurement of the amounts of pollution present in the air in various areas throughout the country.

(ii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iii) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December, 1953, regular observations of atmospheric pollution were being made by about 180 local authorities and other co-operating bodies, involving

the use of more than 1,350 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. A process which is undergoing investigation in the laboratory and on a pilot-plant scale at the Fuel Research Station, is the Fulham-Simon-Carves Ammonia Process. An important feature of this process is that the sulphur is recovered as saleable products—namely ammonium sulphate and sulphur.

Local Authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1953 of a total of some 200 co-operating bodies, over 130 had appointed representatives to serve on this Conference.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to ten per cent. of the fuel, has been developed and is now being manufactured commercially. In the same field, research is now being directed towards the development of smoke eliminators for vertical boilers and hand-fired, forced-draught boilers of the Lancashire type.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the Coal Utilization Council's List of Recommended Domestic Solid Fuel Appliances which is circulated for the guidance of local authorities and is available to the general public.

THE MINISTRY OF FUEL AND POWER

The main function of the Fuel Efficiency Branch of the Ministry of Fuel and Power is the promotion of efficiency in the use of fuel and power and since this is necessarily closely associated with smoke abatement the Ministry takes an active and practical part in this work.

The technical services of the Branch are carried out by a staff of experienced fuel engineers and fuel engineering assistants in each Region who, among other duties, are available to assist in dealing with problems of excessive smoke and grit emission.

The Ministry also encourages the provision of City and Guilds courses in Boilerhouse Practice (preliminary, intermediate and final grade), and for the newly instituted Boiler Operators' Certificate, Combustion Engineering, and other subjects conducive to fuel efficiency and thus to smoke abatement.

Inquiries should be addressed to the appropriate Regional Fuel Engineer at the address given in the Directory.

THE BEAVER COMMITTEE INTERIM REPORT

The Interim Report of the Committee (H.M.S.O., 1s. 6d., pp. 30) was published in December, 1953. It is in two parts. Part I outlines the problem and makes recommendations for immediate action. Part II is a more detailed technical survey which is divided into the following sections: the nature of air pollution; the main sources and amounts of pollution; the effects of pollution; the legislative provisions and preventive measures.

The recommendations for immediate action relate mainly to action that should be taken by the authorities and members of the public when a smog emergency is likely.

Following are verbatim quotations of some of the more important statements and recommendations in Part I.

Both medical opinion and chemical investigation indicate that the deleterious effects of the oxides of sulphur are greatly enhanced by the presence of smoke particles and our conclusion therefore is that *the first objective should be to prevent the emission of coal smoke and oil smoke*, and of grit. By smoke we mean solid particles of soot, fine dust and minute liquid droplets of tar and oil.

It follows that a first, immediate and stubborn obstacle to the reduction of smoke is the preference of the majority of people for traditional methods of heating. The need for education and training in these matters is urgent and vital.

The elimination of industrial smoke is intimately connected with the efficient use of fuel. With few, if any, exceptions, no industrial chimney need emit more than a light haze of smoke if the combustion arrangements are adequate and are properly operated. To achieve this will in many cases involve replacing or modifying existing equipment, and will involve capital expenditure; but it is completely possible.

The prevention of domestic smoke is theoretically simple but involves practical difficulties which we are now investigating. It is relevant to point out that:—

(1) The householder himself creates much, and in some areas nearly all, of the smoke that causes damage to his own property, expense and heavy work in washing dirty fabrics, and ill-health to his family.

(2) The vast majority of domestic space heating grates, especially in the industrial areas of the country where the smoke problem is most acute, are of old-fashioned design, made for the specific purpose of burning coal. Most smokeless fuels, other than low temperature coke, cannot be burnt satisfactorily in these appliances. It is a major problem to replace the millions of these inadequate grates now in use by grates of suitable design.

(3) The *complete* prevention of domestic smoke in the present state of our knowledge, rests on the use of smokeless fuels in all domestic appliances. The problem, here, is how to provide the quantity and quality of smokeless fuels necessary at a reasonable price and to secure that householders use them. The plain and inescapable fact is that there is nothing like enough smokeless fuel in the country for this purpose either now or in sight within the next few years. Although the Simon Committee in 1946 recommended that measures be taken forthwith to provide the necessary fuels within a period of years, little or nothing on the lines they envisaged seems to have been done. Provisions of smokeless fuel for the whole country on the scale indicated would inevitably be a long-term objective, but, we believe, it should be possible to provide within only a few years sufficient smokeless fuel to supply all the worst areas. But this involves problems both of supply and of economics, into which we are enquiring. We are at the same time examining whether there are possibilities of *material* reduction in smoke emission by developing and using domestic appliances to burn bituminous coal smokelessly.

Part II of the report is summarized as follows:—

The most serious immediate problem in regard to air pollution is that which arises from the combustion of fuel (coal, oil and other products) in large towns.

The effects are most serious when natural weather conditions allow the pollution to accumulate, and when natural fog is turned into " smog."

The areas in which this is most likely to happen are known. They are the black spots where the need for prevention is most urgent.

The London " smog " of December, 1952, which resulted in some 4,000 deaths, emphasized that heavy concentrations of pollution can be lethal.

The pollution that occurs regularly in many large towns is also a menace to health, and has serious social, material and economic consequences.

The material cost borne by the community every year is substantial; it may amount (so far as it is measurable in money) to more than £100 million a year, apart from the cost in wasted fuel which smoke represents.

The chief pollutants are smoke, sulphur dioxide, carbon monoxide, and grit. The domestic fire is the biggest single *smoke* producer. In ratio to the coal burnt it produces twice as much smoke as industry and discharges it at a lower level.

Three-fifths of the *sulphur-dioxide* comes from industrial sources, one-fifth from electricity generating stations, and one-fifth from domestic consumers.

Carbon monoxide is produced in about equal proportions from domestic and other sources, but about one-sixth of the total comes from motor vehicle exhausts. Under certain conditions this may cause relatively high local concentration at or near ground level.

Grit, although the total weight emitted is only about one-quarter that of smoke, is produced from a large number of different sources in substantial quantities.

The Acts in force for the control of pollution are designed to secure that the best practicable means of prevention are used. Except for the " smokeless zone " provisions in local Acts they are aimed at pollution from industrial and not domestic sources.

The problem of reducing pollution, and of creating real smokeless zones, is largely that of the practical means. Short of stopping people from lighting fires and bringing industry to a standstill, prevention can be enforced only if there is the necessary technical " know-how," the will and the means of applying it, and the appropriate fuel.

The measures which have been or are now being taken to tackle the problem of pollution may be summarized briefly:-

(1) The conversion of bituminous coal into coke, gas and electricity.
(2) The use of smokeless fuels for domestic purposes in place of bituminous coal.
(3) The replacement of old-fashioned domestic grates by improved appliances in which smokeless solid fuels, and if necessary bituminous coal, can be burnt with appreciably greater efficiency.
(4) The extension, where economic, of central or district heating, whereby blocks or groups of buildings are heated from a single smokelessly fired boiler.
(5) The promotion of greater fuel efficiency in industry, both by more competent use of existing equipment and by the modernization of present equipment or the installation of new equipment where it is needed.
(6) The use of efficient grit-arresting plant for furnaces fired by pulverized fuel or operated by forced draught.
(7) The cleaning of coal at the coal fields in order to remove shale and some of the sulphur compounds.
(8) Research and development work on practicable methods of removing sulphur dioxide from the flue gases of power stations and other large boiler plants.

DOMESTIC FUEL POLICY

The Simon Report

In March, 1946, *the Fuel and Power Advisory Council, the Chairman of which was Lord Simon of Wythenshawe, presented a report on " Domestic Fuel Policy " to the Minister of Fuel and Power. This was, and is, an important document for the smoke abatement movement, as the policy recommended was largely identical with that needed for the abolition of household smoke.*

The Committee came to the conclusion that " our coal is used for domestic heating with a degree of inefficiency which is not, so far as we can ascertain, even

approached in any other country in the world." For reference some of the Committee's recommendations relating particularly to smoke prevention, are quoted (the reference after each paragraph being to the section of the "Summary of Objectives and Recommendations," as given on pages 32-35 *of the Report*):

National Fuel Economy—To ensure that all fuels shall be used in the most efficient and economical manner with due regard to the need for conserving the national reserves of coal. (1c)

Smoke abatement—To abolish the pollution of the atmosphere from domestic sources by soot and tar, and to reduce to the lowest practicable limit the emission of sulphurous gases. (1d)

The Government should encourage the production of improved heating appliances for all fuels and for all domestic purposes. It is particularly important to develop multi-fuel appliances to burn efficiently and as smokelessly as possible both bituminous coal and smokeless solid fuels. (2a)

Minimum standards should be established as soon as possible for all leading types of appliances. (2b)

The manufacture and sale of new appliances falling below approved standards should be prohibited as soon as possible. (2c)

The Government should take steps to secure the mass production of standardized domestic fuel appliances. (2g)

In subsidized houses the Government should make the use of approved solid fuel appliances a condition of subsidy, and should consider the advisability of a free issue of such appliances as part of the subsidy. (2h)

Old fashioned coal grates in existing houses should be replaced wherever possible by new approved appliances. Subsidies should be granted by the Government to encourage widespread and rapid action on these lines. (2j)

Central heating plants should be accepted as the main means of heating blocks of flats or single large houses. (3a)

The Government should endeavour to ensure that the available supplies of smokeless solid fuel should be burnt in individual houses, and that suitable types of central heating and district heating plants should burn bituminous coal. (3b)

It should be the policy of the Government to replace bituminous coal in all single house appliances by smokeless solid fuel as rapidly as adequate supplies can be provided at a reasonable price. (4d)

The Government should encourage the largest practicable increase in the production of smokeless solid fuels suitable for domestic purposes. (5a)

The necessary legislation should be passed to enable smokeless zones to be established, and a few such zones should be declared, mainly for experimental purposes. (10)

It should be the target of a national domestic fuel policy to secure that the 50 million tons of bituminous coal now burnt with a working efficiency of 20 per cent. should be replaced in 20 years by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40 per cent. . . . . (11)

Of these recommendations progress has been made with respect to 2*a*, 2*b*, 2*g*, 2*h and* 10.

Attention may be drawn to action taken by the Ministry of Health with respect to 2*h. Circular* 170/48, *to Housing Authorities, dated* 11*th November*, 1948, *stated:*

Having regard to the continued importance of economy in fuel and the permanent need of cheaper and more efficient domestic heating, the Minister must in these circumstances ask all housing authorities to review present practice and in all future housing schemes to specify only the types of solid fuel heater contained in the lists of approved appliances circulated from time to time.

NATIONAL FUEL POLICY

The Ridley Report

The Committee appointed by the Ministry of Fuel and Power, with Lord Ridley as Chairman, published its report in September, 1952, on "Policy for the Use of Fuel and Power Resources." (H.M.S.O., 6s. 6d.). A review of the general findings of the Committee appeared in SMOKELESS AIR, *Winter, 1952, in which reference was made to the attention given to smoke abatement. An appendix of the Report is devoted to this subject, and in view of its lasting importance is reprinted in full below.*

Appendix IV

Smoke Abatement

1. Chapter I, paragraph 4 states that "the best use of fuel and power is determined by the value of the resources consumed to provide the supply, the social costs to the community of producing or using it, and the value to the individual consumer of the specific fuel and power service."

2. One heavy social cost to the community is the smoke pollution usually produced when raw coal is burnt inefficiently. It is impossible to measure all this cost in money. Estimates have been cited from time to time for parts of it (for instance, in the Egerton Report (Appendix A 4, 5)). In real terms it is certainly enormous as every-day observation in our large towns and cities shows—most clearly to those who know conditions abroad, where less coal is burnt raw in inefficient conditions. Among the social costs are the loss of sunlight and the harm to the health of the citizens, the reduction in the amenities of town life, the damage to buildings and textile fabrics, the extra costs of painting, washing, and laundry, and the loss of food production which results from the smoke deposit in the countryside around the towns. These are only some of the main losses which the community endures through smoke.

3. But apart from the loss which the community suffers from smoke pollution, there is the inefficiency of which smoke is the visible symptom.

4. The main sources of smoke pollution in the United Kingdom are:

(1) The millions of households which use raw coal burnt in old-fashioned open grates as the main source of heat comfort. There are perhaps 12 million such open fires in regular use, together burning more than 30 million tons of coal a year—and producing a million tons of smoke. Thus the townsman pays heavily for smoke, both directly as a coal consumer, and indirectly as a citizen living in dirty air.

(2) Smaller industrial boilers and furnaces burning raw coal.

(3) Steam railway locomotives.

5. In the Report proposals have been made for increasing the efficiency of fuel use in each of these three main smoke-producing uses:

(1) Domestic use. The Committee have recommended in Chapter V:
   (*a*) The development of more efficient types of open fire which will burn coal with less smoke and greater efficiency even than the standard improved fires now coming into popular use.
   (*b*) The use of more gas domestically during peak hours on the electricity supply system, with correspondingly greater supplies of coke.

(2) Industrial boilers and furnaces. The Committee have recommended in Chapter VI:
   (*a*) The expansion of the fuel efficiency advisory service.
   (*b*) Financial incentives to firms for installing fuel efficiency equipment.
   (*c*) The requirement of prior approval by the Government for the heating installations in new industrial and commercial buildings.
   (*d*) More schemes for the training of stokers in the efficient and smokeless firing of boilers and furnaces.
   Eliminating smoke does not necessarily mean attaining fuel efficiency; in some conditions, smoke can be avoided by

reducing boiler efficiency, for instance by admitting additional air. Happily, however, the efficient use of fuel does mean its smokeless use.

(3) Steam railway locomotives. There appear to be no practicable methods of making the standard steam railway locomotive fuel efficient and smokeless; progress here must come through the switch to other methods of traction which the Committee have recommended in Chapter VI on the score of fuel efficiency, but it cannot be done quickly because of the huge investment required.

6. All the above methods are means to increase fuel efficiency and incidentally to reduce smoke pollution. The Committee have considered also measures primarily for reducing smoke pollution. They are:

(1) The wider use of the low temperature carbonization process. This method produces solid smokeless fuel more acceptable to most householders and more easily burnable than gasworks coke in most existing grates; on these grounds the Committee have recommended in Chapter V that its extension should be encouraged.

(2) The more general adoption of smoke abatement bye-laws by local authorities. Under the Public Health Act, 1936, local authorities may enact bye-laws intended to check smoke pollution from most sources other than the domestic chimney; about one in five of the urban authorities have done so. It is doubtful whether the more general adoption of the bye-laws would, in present conditions, make any great contribution to reducing smoke pollution in our towns. What is important is that consumers should be able to get the sorts of fuels which can be burnt efficiently in the equipment they have, and, even more important, that a fuel advisory service should be readily available to them. When these conditions obtain, there may be a case for the more general adoption of bye-laws, possibly with some stiffening of the penalties and widening of their scope. Until then, however, there is danger that more general and stiffer legislation against smoke might actually reduce fuel efficiency, as firms sought to avoid prosecution by using excess air in their appliances.

(3) The establishment of more smokeless zones. The Simon Report recommended that legislation should be passed to enable urban authorities to define parts of their areas where smoke emission would be prohibited. Since 1946 fifteen local authorities have been granted powers in private legislation to declare smokeless zones, and two smokeless zones—at Coventry and Manchester—are already in existence. Further progress in the establishment of smokeless zones depends on having enough smokeless fuel and suitable appliances. As they become available, there is, in the Committee's view, a good case for more widespread declaration of smokeless zones, in the cause both of reducing the social costs of smoke pollution and improving fuel efficiency.

THE LONDON SMOG, DECEMBER, 1952

The London smoke-fog of 5th to 9th December, 1952, is now recognized as probably the most severe incident of its kind yet experienced in this country or elsewhere. The principal facts may be given in summary form, as follows.

The fog developed on Friday, 5th December and continued until 8th December. It was marked by a period of virtually complete calm and for the low height, 200 to 500 feet, of the temperature inversion, beneath which the fog and pollution was concentrated.

Observations at County Hall showed a rise in average daily smoke concentration (mgm. per c. metre) from 0.49 on 3rd December to 4.46 on 7th and 8th December; and a rise in sulphur dioxide (parts per million) from 0.144 to 1.339. Air filters at the National Gallery became clogged during 24 hours of the fog at the rate of 26 times the normal, and in one period of four hours at a rate of 54 times the normal.

The number of deaths caused by the fog, during the two weeks following it,

are given by Dr. Logan (op. cit.) as about 4,000 for Greater London. In the London Administrative County only, during the week following the fog, compared with the previous week, deaths from bronchitis rose from 121 to 872, and from diseases of the heart and circulatory system from 318 to 801. Nearly all age groups were affected, particularly those aged 45 and upwards. During the period the deaths in other parts of the country showed no significant change. In the London County area the death rate, per million population, during the week following the fog was exceeded only in 1866 (cholera), 1873 (fog) and 1918 (influenza), but the *excess* of the rate over the normal for the period and season was greater after the 1952 fog than any occasion other than 1918. The excess over the normal in 1866 was 426; in 1873, 243; in 1918, 785; and in 1952, 445.

Reports of the disaster, to which reference should be made for full details, include the following, listed according to the principal aspects covered.

Medical—Dr. W. P. D. Logan, *Lancet*, 14th February, 1953.
Dr. J. A. Scott, Medical Officer of Health, L.C.C., Health Report, 1953.
Ibid. Glasgow Conf. Proc., N.S.A.S., 1953.

Meteorological—C. K. M. Douglas and Dr. K. A. Stewart, *Meteorological Magazine*, March, 1953.

Air Pollution—Dr. E. T. Wilkins, *J.R. San. Inst.*, 1954, *74*, 1-21.
Dr. A. Parker, *Glasgow Conf. Proc.*, N.S.A.S.

General—Survey of the London Fog, *Smokeless Air*, Spring, 1953 (reprinted in pamphlet form.)
A. Marsh, *Glasgow Conf. Proc.*, N.S.A.S.

RECENT PAPERS AND REPORTS

A Selected List

Air Pollution, Committee *on Interim Report*, H.M.S.O. 1953.

Air Pollution. A Chadwick Lecture. C. J. Regan. *Smokeless Air*, Winter 1953, **24**, 67-73.

Air Pollution in Relation to Preventive Medicine. Sir John Charles. *N.S.A.S. Proc. Glasgow Conf.* 1953.

Air Pollution and the London Fog of December 1952. E. T. Wilkins. *J.R.San.I.* 1954, **74**, 1-21.

Air Pollution in South Wales. G. A. Morgan. *Smokeless Air*, Summer 1953, **23**, 161-163.

Alkali, etc. Works. 89*th Annual Report*. H.M.S.O. 1953.

Arsenic in the Suspended Matter in Town Air. F. Goulden, E. L. Kennaway and M. E. Urquhart. *Brit. J. Cancer* 1952, **6**, 1.

The Benzpyrene Content of Town Air. R. E. Waller, *Brit. J. Cancer* 1952, **6**, 8.

The Boiler Operator's Certificate. S. N. Duguid. *Smokeless Air*, Summer 1953, **23**, 154-155.

The Case For and Against Byelaws. W. Parker. *Smokeless Air*, Autumn 1953, **23**, 28-30.

The Clifton Smokeless Housing Estate. A. Wade. *Smokeless Air*, Autumn 1953, **24**, 17-18.

The Combustion Aspects of Gas-Coke Utilization. Progress Review No. 23. *J.Inst.Fuel* 1953, **25**, 443.

District Heating. parts i-v, *Post War Building Studies No.* 31. H.M.S.O. 1953.
part vi, *Post War Building Studies No.* 32. H.M.S.O. 1953.

District Heating, A. E. Margolis, *Engineering*, **9**, 16 Oct., 1953.

The Domestic Appliance Industry and Fuel Usage. Melchett Lecture. Harold Hartley. *J.Inst.Fuel* 1953, **26**, 234.

Dust Sampling and Lung Disease. C. N. Davis. *Brit.J.Industr.Med.* 1952, **9,** 120-126.

The Efficient and Smokeless Combustion of Fuel Oil. K. H. Sambrook. *N.S.A.S. Proc. Glasgow Conf.* 1953.
Electricity and Industrial Production. E. R. Wilkinson. *B.E.A.M.A. Journal* 1953, **60,** 248.
Electricity and National Prosperity. B. H. Leeson. *B.E.A.M.A. Journal* 1953, **60,** 244.
Experience With Spreader Stokers. T. H. Lindsay and P. Pilkington. *J.Inst.Fuel* 1953, **26,** 66.

The Firing of Solid Fuels in Smokeless Zones. Report of the *C.E.A. Conf. Manchester* June 1953.
Fuel Conservation. *Brit. Productivity Council* 1953.
Fuel Economy Review. *Fed. Brit. Ind.*, **32,** 1954.
Fuel Research 1952. Annual Report H.M.S.O. 1953.

The Influence of Certain Smokes and Dusts on the SO3 Content of Flue Gases From Power Station Boilers. P. F. Corbett and D. Flint. *J.Inst.Fuel* 1953, **25,** 43.

The London Fog, A First Survey. *Smokeless Air*, Spring 1953, **23,** 100-111.
The London Fog Disaster. Reports by J. A. Scott, A. Parker and Arnold Marsh. *N.S.A.S. Proc. Glasgow Conf.* 1953.
Low Grade Fuel Can Be Burned Without Smoke. J. Fox. *Smokeless Air*, Autumn 1953, **24,** 24-37.

Polluted Air over the Towns. *The Times*, 20/21st April 1953.
Pottery Manufacture, Town Gas in, K. Davis, *Gas World*, 18th April 1953.
Pottery Kilns, Firing, Searle A. F., *Gas World*, 18th April 1953.
Pottery Kilns, Latest in, R. A. Wood, *Pottery and Glass*, September, 1953.
Production of Gas and Carbonized Fuels—Today and Tomorrow. H. D. Greenwood. *J.Inst.Fuel*, 1953, **25,** 379.
The Production and Use of Energy in Great Britain. Sir John Hacking. *B.E.A.M.A. Journal*, August 1953, **60,** 241.

Radioactive Material in the Air. K. B. Dawson. *Brit. J.Cancer* 1952, **6.** 22.
The Removal of Oxides of Sulphur From Flue Gases. R. Llewellyn Rees. *J.Inst. Fuel* 1953, **25,** 350.

Smoke Abatement and Fuel Economy in the Home. M. Barash. *Smokeless Air*, Spring 1953, **23,** 125-126.
Smoke Elimination and Fuel Saving in a Brewery. J. Dryden Little. *Smokeless Air* Autumn 1953, **24,** 35-42.
Smoke Haze over the Isle of Man. K. C. Kearns. *Smokeless Air*, Summer 1953, **23,** 164-166.
Smokeless Zones in Manchester. C. Metcalfe Brown. *Medical Off.* July 1953, **90,** 8.
Solid Smokeless Fuels, the Production and use of. F. J. Eaton, G. E. Hall and Islwyn Jacob. *N.S.A.S. Proc. Glasgow Conf*, 1953.
Solid Smokeless Fuels, The Availability and Distribution of. C. Buist, J. O. Cooke, Eric J. David and H. H. Prosser. *N.S.A.S. Proc. Glasgow Conf.* 1953.
A Summary of Heat Pump Development and Use in Great Britain. J. A. Sumner. *J.Inst. Fuel* 1953, **25,** 328.

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BRITISH STANDARDS INSTITUTION, British Standards House, 2 Park Street, London, W.1. (Mayfair 9000).

BUILDING CENTRE, 26 Store Street, London, W.C.1. (Museum 5400).

BUILDING RESEARCH STATION, Bucknall's Lane, Garston, Nr. Watford, Herts. (Garston 2246).

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S.W.1. (Victoria 6161/2).

CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1. (Museum 1761).

CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7. (Fremantle 1121).

Coal Board, National, Hobart House, Grosvenor Place, London, S.W.1. (Sloane 3401).
Coal Utilization Council, 3 Upper Belgrave Street, London, S.W.1. (Sloane 9116).
Coal Utilization Research Association, British, Randalls Road, Leatherhead, Surrey. (Leatherhead 4411).
Coke Ovens Managers' Association, 1 Cliff Street, Mexborough, Yorks.
Coke Research Association, British, 74 Grosvenor Street, London, W.1. (Mayfair 9736).
Coking Industry Association, British, 74 Grosvenor Street, London, W.1. (Mayfair 9736).
Combustion Engineering Association, 6 Duke Street, St. James's, London, S.W.1. (Whitehall 5536).
County Boroughs' Association, Town Hall, Oxford. (Oxford 2206).
County Councils' Association, 84 Eccleston Square, London, S.W.1. (Victoria 5934)-
County Councils in Scotland, Association of, 3 Forres Street, Edinburgh. (Edinburgh 34991).

Electrical and Allied Industries Research Association, British, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. (Leatherhead 3423). Laboratories, Wadsworth Road, Perivale, Middlesex. (Perivale 9511).
Electrical Development Association, British, 2 Savoy Hill, London, W.C.2. (Temple Bar 9434).
Electrical Engineers, Institution of, Savoy Place, Victoria Embankment, London, W.C.2. (Temple Bar 7676).
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Northern	Government Buildings, Kenton Bar, Newcastle upon Tyne, 3. (Newcastle 25121).
North Eastern	Century House, South Parade, Leeds, 1. (Leeds 33166).
North Midlands	Government Buildings, Chalfont Drive, Western Boulevard, Nottingham. (Nottingham 77711).
Eastern	Shaftesbury Road, Brooklands Avenue, Cambridge. (Cambridge 58951).
London	23/26 Chester Terrace, Regent's Park, London, N.W.1. (Welbeck 7711, Ex. 727).
Southern	Whiteknights, Earley, Reading. (Reading 61122).
South Western	Flowers Hill, Brislington, Bristol, 4. (Bristol 75341).
Wales	Government Buildings, Gabalfa, Cardiff. (Cardiff 33141).
Midland	63 Hagley Road West, Birmingham, 17. (Birmingham, Bearwood 3071).
North Western	Burton Road, West Didsbury, Manchester, 20. (Manchester, Didsbury 5180/4).
Scotland	145 St. Vincent Street, Glasgow, C.2. (Glasgow, City 7636).
South Eastern	Government Buildings, Forest Road, Hawkenbury, Tunbridge Wells. (Tunbridge Wells 2780).

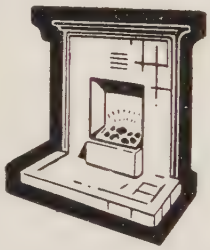
Fuel Research Station, River Way, Greenwich, London, S.E.10. (Greenwich 3065). (Scottish Branch: Thorntonhall, Nr. Glasgow. (Glasgow, Busby 1171)).

Gas Council, Gas Industry House, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).
Gas Engineers, Institution of, 17 Grosvenor Crescent, London, S.W.1. (Sloane 8266).
Gas Industries, Society of British, 56 Victoria Street, London, S.W.1. (Victoria 8948).
Georgian Group, 27 Grosvenor Place, London, S.W.1. (Sloane 2844).

SOLID SMOKELESS FUELS

The Solid Smokeless Fuels Federation

is a group of organisations responsible for practically the total production of solid smokeless fuels in Great Britain, amounting to 38,500,000 tons per annum. One of the main objects of the Federation is to ensure that solid smokeless fuels are used as efficiently as possible. The combined technical and scientific resources of the Federation, in association with appliance makers, are continually employed in developing high efficiency equipment both for the home and for industry.



The advantages of Solid Smokeless Fuels

Solid smokeless fuels give a *higher* proportion of *radiant* heat than household coal. Consequently you get more useful heat from approved domestic appliances at a *lower* cost for fuel.
Appliances designed for solid smokeless fuels provide easy and accurate control of the rate of burning and heat output. This makes them extremely economical to run, and capable of long burning periods and overnight banking, thus saving work and attention.
Solid smokeless fuels are graded in a wide range of sizes and in a variety of types to ensure satisfactory performance in all domestic appliances.
Modern solid smokeless fuel appliances usually incorporate a built-in gas burner or gas poker. Lighting up is therefore simple, clean and convenient. No wood or paper is required.
These fuels are smokeless and sootless. They save dirt and work in the home and help to keep house furnishings and paintwork clean.
Solid smokeless fuels are conducive to better atmospheric conditions and improved standards of health.



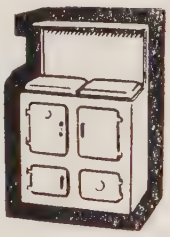
Which are the Solid Smokeless Fuels?

They comprise chiefly (1) the natural smokeless fuels, Welsh Anthracite and Dry Steam Coals, and (2) the manufactured smokeless fuels, Gas Coke, Hard Coke, Low Temperature Coke (''Coalite'' and Rexco) and Carbonised Ovoids. The natural fuels are obtained from underground coal seams. Both are dense fuels with a low ash content providing highly desirable long-burning properties. The manufactured fuels result from the carbonisation of coal in retorts or ovens, whereby the smoke-producing substance present, known as its ''volatile content'', is converted into gas and tar, the source of valuable by-products for use in home and industry. Carbonised Ovoids are marketed under the trade name of ''Phurnacite''. They have a uniform shape, a low ash content and are very similar in burning properties to Anthracite.



Smokeless Zones

Solid smokeless fuel appliances, because of their outstanding efficiency and fuel economy, are particularly suited to meet the requirements for heating services in Smokeless Zones. The S.S.F.F. offers free technical advice to local authorities who are considering the establishment of Smokeless Zones in their areas.



Abolish smoke with solid smokeless fuels and get better heating in the home

S.15

SOLID SMOKELESS FUELS FEDERATION, 74 Grosvenor Street, London, W.1

Health Education, Central Council for, Tavistock House, Tavistock Square, London, W.C.1. (Euston 3341).
Heating and Ventilating Engineers, Institution of, 75 Eaton Place, London, S.W.1. (Sloane 3158).
Housing and Local Government, Ministry of, Whitehall, London, S.W.1. (Whitehall 4300). (see also Alkali Inspectorate).
Housing and Town Planning Council, National, 42 Devonshire Street, London, W.1. (Langham 8440)
Housing Centre, 13 Suffolk Street, London, S.W.1. (Whitehall 2881).
Housing Incorporated, Institute of, 37 Strand, London, W.C.2. (Trafalgar 3622).

Iron and Steel Federation, British, Steel House, Tothill House, London, S.W.1. (Whitehall 1030).
Iron and Steel Research Association, British, 11 Park Lane, London, W.1. (Grosvenor 4751).
Iron Founders' Association, British, 30 St. James's Square, London, S.W.1. (Whitehall 6866).

London and Home Counties Smoke Abatement Advisory Council, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1. (Abbey 6817)
Low Temperature Coal Distillers' Association of Great Britain Ltd., P.O. Box No. 21, Chesterfield, Derbyshire. (Bolsover 281).

Manchester and District Regional Smoke Abatement Committee, Town Hall, Manchester, 2. (Manchester, Central 3377 Ex. 341).
Mechanical Engineers, Institution of, Storey's Gate, London, S.W.1. (Whitehall, 7476/9).
Medical Officers of Health, Society of, Tavistock House South, Tavistock Square, London, W.C.1. (Euston 3923).
Meteorological Society, Royal, 49 Cromwell Road, London, S.W.7. (Kensington 0730).
Metropolitan Boroughs' Standing Joint Committee, Westminster City Hall London, W.C.2. (Temple Bar 0111).
Midlands Joint Advisory Council for the Abatement of Smoke and Atmospheric Pollution, Public Health Department, Council House, Birmingham, 3. (Birmingham, Central 7000 Ex. 60).
Municipal and County Engineers, Institution of, 84 Eccleston Square, London, S.W.1. (Victoria 5083).
Municipal Corporations, Association of, Victoria Station House, London, S.W.1. (Tate Gallery 0764).

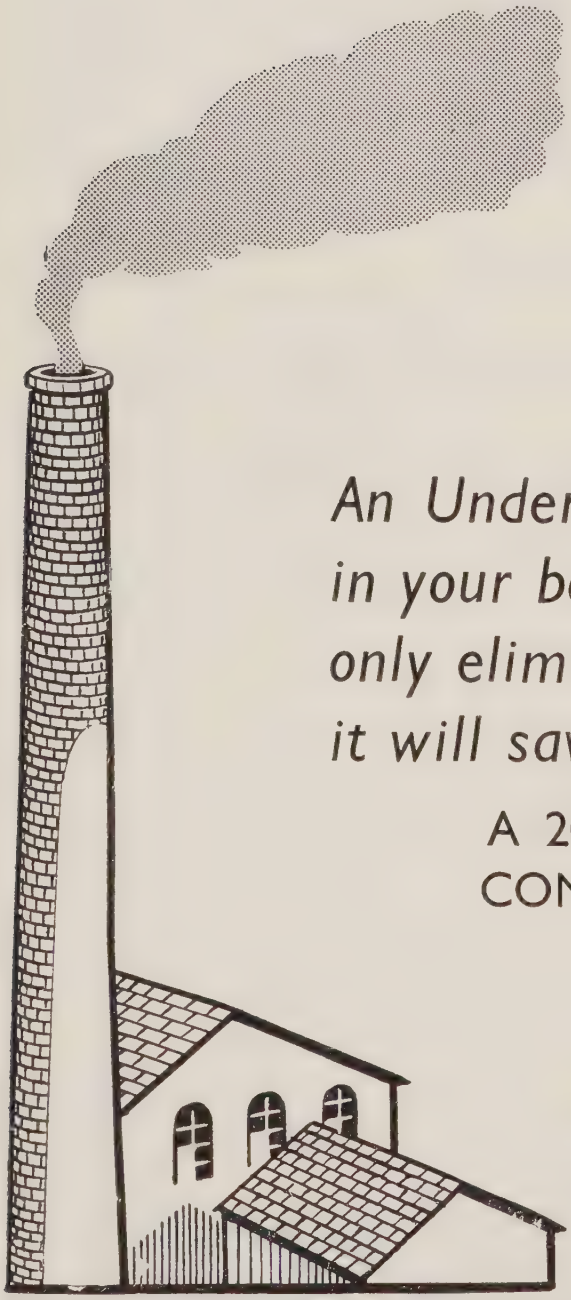
National Trust for Places of Historic Interest or Natural Beauty, 42 Queen Anne's Gate, London, S.W.1. (Whitehall 0211).

Parliamentary and Scientific Committee, 31 Palace Street, London, S.W.1. (Victoria 4992).
Public Health and Hygiene, Royal Institute of, 28 Portland Place, London, W.1. (Langham 2731/2).
Preservation of Rural England, Council for the, 4 Hobart Place, London, S.W.1. (Sloane 4280).
Protection of Ancient Buildings, Society for the, 55 Great Ormond Street, London, W.C.1. (Holborn 2646).

Royal Burghs of Scotland, Convention of the, 51 Castle Street, Edinburgh. (Edinburgh 25179).
Royal Institution of Great Britain, 31 Albemarle Street, London, W.1. (Regent 5716).

COMPLAINTS ABOUT SMOKE

from your chimney may cause concern, but they are really a blessing in disguise because smoke indicates inefficient burning and waste of fuel



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Rural District Councils' Association, 191/7 St. Stephen's House, London, S.W.1. (Whitehall 6641).

Sanitary Association of Scotland, Royal, 185 St. Vincent Street, Glasgow. (Glasgow, Central 3345).
Sanitary Engineers, Institution of, 118 Victoria Street, London, S.W.1. (Victoria 3017).
Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1. (Sloane 1770).
Sanitary Institute, Royal, 90 Buckingham Palace Road, London, S.W.1. (Sloane 5134).
Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788). *See also* Building Research Station, Fuel Research Station.
Scottish Counties of Cities Association, City Chambers, Edinburgh. (Edinburgh, Central 2424).
Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield. (Sheffield 27241)
Smoke Abatement Society, National
Central Offices: 30 Grosvenor Place, London, S.W.1.
East Midlands Division: Sanitary Inspectors' Office, 50 Shakespeare Street, Nottingham. (Nottingham 40584).
North East Division: Sanitary Department, Town Hall, Ashington. (Ashington 3210).
North West Division: Health Department, Town Hall, Manchester 2. (Manchester, Central 3377 Ex. 339).
Scottish Division: City Chambers, Glasgow. (Glasgow, Central 9600 Ex. 421).
South East Division: Chief Sanitary Inspector, Town Hall, Acton, London, W.3. (Acorn 3232).
West Midlands Division: Public Health Department, 67 Broad Street, Birmingham, 3. (Birmingham, Central 7000 Ex. 442).
Yorkshire Division: Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Leeds 30211 Ex. 29).
Social Service, National Council of, 26 Bedford Square, London, W.C.1. (Museum 8944).
Solid Smokeless Fuels Federation, 74 Grosvenor Street, London, W.1. (Mayfair 0382).
Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788).
Stationery Office, Her Majesty's, 423 Oxford Street, London, W.1. (Mayfair 3492).

Town and Country Planning Association, 28 King Street, London, W.C.1. (Temple Bar 5006).
Town Planning Institute, 18 Ashley Place, London, S.W.2. (Victoria 8815).

Urban District Councils' Association, 28 Victoria Street, London, S.W.1. (Abbey 6642).

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6. (Liverpool, Anfield 2271).
West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Liverpool 30211).
Women, Electrical Association for, 35 Grosvenor Place, London, S.W.1. (Sloane 0401).
Women of Great Britain, National Council of, 36 Lower Sloane Street, London, S.W.1. (Sloane 0619).
Women's Advisory Council on Solid Fuel, 18 South Molton Street, London, W.1. (Mayfair 5358).
Women's Gas Federation, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).

Guide to Publications

This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications which may be obtained either direct from the Society, or other bookseller.

Prices in brackets include postage and packing, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. If a number of items are ordered together excess postages will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

I THE LAW

CODE NO.

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevant sections in full of the principal Acts. New Edition, 1948. Cloth, 5s. (5s. 3d.); paper covers, 3s. (3s. 2d.)

51. **Model Byelaws, Smoke Abatement.** For Local Authorities proposing to make byelaws under Section 104 of the Public Health Act, 1936. (H.M.S.O., 1937). 1d. (3d.)

57. **Model Clauses** (*Revised Edition*, 1950). House of Lords and House of Commons. Contains Model Clauses for Prior Approval, Smokeless Zones and Heights of Chimneys. (H.M.S.O., 1950). 7s. 6d. (7s. 10d.)

(See also III, 58)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans, for post-war reconstruction. 1s. (1s. 2d.)

3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 2d.)

4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)

5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d (4s. 8d.)

6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)

7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (8d.)

8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 2d.)

9. **Smoke Abolition and the Public: Problems of Education and Propaganda.** Leslie Harden. Reprinted from 1948 Conference report. 6d. (8d.)

35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's view of the Case against Smoke. 4s. 6d. (4s. 8d.)

42. **Margate Conference, 1950.** The Des Vœux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as applied to New Housing and Railway Smoke. 6s. (6s. 2d.)

47. **Blackpool Conference, 1951.** The Des Vœux Memorial Lecture—" Power and Waste in their Social Setting," and papers on the Smokeless Operation of Small Steam Raising Plant, Policies for the Prevention of Industrial Air Pollution and Smoke Prevention in the Home—The Woman's Viewpoint. 7s. 6d. (7s. 8d.)

52. **Portsmouth Conference, 1952.** The Des Vœux Memorial Lecture—" Smoke and the Law," Progress Reports, Incentives for Smoke Prevention and Pollution, Problems in the Iron and Steel Industry. 6s. (6s. 2d.)

61. **Glasgow Conference, 1953.** The Des Vœux Memorial Lecture—" Atmospheric Pollution in Relation to Preventive Medicine," and papers on the London Fog Disaster, Smokeless Zones, Production Use and Availability of Solid Smokeless Fuels and the Efficient and Smokeless Combustion of Fuel Oils. 7s. 6d. (7s. 8d.)

65. **The London Fog.** A first survey of the London fog disaster in December 1952. Reprinted from *Smokeless Air*, Spring 1953. 6d. (8d.)

(See also VII, 62; VIII, 29, 30, 32, 38, 45, 48, 63)

III GENERAL

11. **Smoke: The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 10d.)

12. **Guilty Chimneys.** Classified extracts on the case against smoke from authoritative papers and reports, etc. With photographs and maps and diagrams in colour. Invaluable for speakers, writers and teachers. 1s. (2s. 2d.)

13. **Smokeless Air.** The Society's quarterly magazine-type journal. News, articles, photographs, comment. 1s. (1s. 2d.). Per annum, 4s., post free.

14. **Britain's Burning Shame.** A popular pamphlet that puts smoke in its simplest terms to the woman in the home (1939). 2d. (4d.)

53. **Atmospheric Pollution: Its Origins and Prevention.** A. R. Meetham. A new publication covering the most important aspects of the problem. Fully illustrated. (Pergamon Press Ltd., 1952). 35s. (35s. 11d.)

58. **Committee on Air Pollution.** The Interim Report of the Beaver Committee appointed in July 1953 to examine the nature, causes and effects of air pollution and the efficiency of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations. (H.M.S.O. 1953) 1s. 6d. (1s. 8d.)

66. **Facts about Smoke.** A two-colour leaflet for distribution at exhibitions, meetings, etc. £5 10s. 0d. per 1,000 12s. per 100 post free.

IV HISTORICAL

15. **Fumifugium or the Smoake of London Dissipated.** John Evelyn. The famous diarist's well-known tract (1616) reprinted by the Society, with an introduction by Rose Macaulay. Cloth 1s. 6d. (1s. 8d.); paper covers 6d. (8d.)

43. **The Society Comes of Age, 1929-1950.** The Story of the Society reprinted from *Smokeless Air*. Gratis

V SMOKE PREVENTION ADMINISTRATION

16. **Smoke Control.** Suggestions to local authorities on guidance and control in respect of new fuel-burning installations. 3d. (5d.)
54. **Smokeless Zones.** A reprint of a paper giving full details and information on existing and proposed smokeless zones. 6d. (8d.)

(See also I, 1. 51; II, 2. 4. 5. 6, 35, 42, 52, 61; III, 11 53)

VI INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 1s. (1s. 2d.)
36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949). 1s. (1s. 2d.)
60. **Industrial Smoke Prevention and National Fuel Policy.** Excerpts from the Report of the Committee on National Fuel Policy for the use of Fuel and Power Resources. 30s. 0d. per 100 or 5s. 0d. per dozen, post free. Single copies 6d. (8d.)

(See also II, 3. 4, 5, 6, 35, 42, 47, 61; III, 11, 53; V, 16; VIII, 55 64)

VII DOMESTIC HEATING

20. **Heating and Ventilation of Dwellings.** The Building Research Board's comprehensive survey, with much material of smoke prevention interest. (H.M.S.O., 1945). 2s. 6d. (2s. 10d.)
21. **Domestic Fuel Policy.** Report of the Minister of Fuel and Power's Advisory Council (the Simon Report). Its recommendations relating to smoke prevention are of exceptional importance. (H.M.S.O., 1946). 1s. (1s. 2d.)
23. **Domestic Heating in America.** An important supplement to the study of British heating methods and standards. (H.M.S.O., 1946). 3s. (3s. 3d.)
24. **Gravity Warm Air Systems.** Describes the new methods of warming a house by ducts from a single space heater. (H.M.S.O., 1947). 1s. 6d. (1s. 8d.)
37. **District Heating in American Housing.** National Building Studies, Special Report No. 7 by the Ministry of Fuel and Power. The report of a mission to the U.S.A. in 1947. Fully illustrated and containing statistical tables. (H.M.S.O., 1949). 4s. 6d. (4s. 10d.)
44. **Housing Manual, 1949.** The official recommendations on housing practice. The section on the heat installation may be regarded as the basis of present-day smoke prevention policy. (H.M.S.O., 1949). 3s. 6d. (3s. 10d.)
59. **Domestic Smoke Prevention and National Fuel Policy.** Excerpts from the Report of the Committee on National Fuel Policy for the use of Fuel and Power Resourses. 30s. 0d. per 100 or 5s. 0d. per dozen, post free. Single copies 6d. (8d.)
62. **Solid Smokeless Fuels.** The production, use and availability of solid smokeless fuels. Papers reprinted from the Glasgow Conference Proceedings, 1953. 1s. 6d. (1s. 8d.)

(See also II, 2, 3, 4, 5, 6, 35, 42, 47, 52; III, 11, 53; VIII, 55 67)

VIII TECHNICAL AND SCIENTIFIC STUDIES

25. **Reduction of Smoke from Merchant Ships.** Fuel Research Technical Paper No. 54. A full report of voyage trials of the Fuel Research Station's smoke eliminator. (H.M.S.O., 1947). 1s. 3d. (1s. 5d.)
26. **Atmospheric Pollution in Leicester.** Report of the important scientific survey of the behaviour of pollution in the atmosphere. (H.M.S.O., 1945). 3s. (3s. 3d.)
27. **Smoke and its Measurement.** Fuel Research Technical Report No. 53. On the correlation of optical density with the nature and quantity of smoke from a hand-fired Lancashire boiler. (H.M.S.O., 1945). 6d. (8d.)
29. **Smoke Abatement in Greater London.** Report of a conference of which the most important part is a paper of the same title by the late Dr. J. S. Owens. 6d. (8d.)

30. **Atmospheric Pollution in Great Britain.** Dr. C. E. P. Brooks. Reprint from the 1947 Conference Proceedings of a paper by a senior officer of the Meteorological Office. 1s. (1s. 2d.)

32. **The Measurement of Atmospheric Pollution.** Dr. A. R. Meetham. Reprint from the 1947 Conference Proceedings. 9d. (11d.)

38. **The Work of the Fuel Research Station.** Dr. A. Parker. Reprint from 1949 Conference Proceedings by the Director of Fuel Research. Illustrated. 1s. (1s. 2d.)

39. **The Investigation of Atmospheric Pollution.** 26th Report by the Fuel Research organization of the Department of Scientific and Industrial Research, co-ordinating local observations of atmospheric pollution. (H.M.S.O., 1949). 2s. 6d. (2s. 9d.)

45. **Towards the Better Use of Coal.** Dr. D. T. A. Townend. The first Des Vœux Memorial Lecture by the Director-General of the British Coal Utilization Research Association. Reprinted from the 1950 Conference Proceedings. 2s. 6d. (2s. 8d.)

48. **Power and Waste in their Social Setting.** Dr. J. Bronowski. The second Des Vœux Memorial Lecture. Reprinted from the 1951 Conference Proceedings. 1s. (1s. 2d.)

49. **British Standard for Deposit Gauges for Atmospheric Pollution.** Issued by the British Standards Institution giving details of construction, siting, operation, analysis of deposited matter and statement of results, together with a standard report form for entering monthly results. (B.S.1747, 1951). 2s. 6d. (2s. 8d.)

55. **Policy for the Use of Fuel and Power Resources.** The Report of the Ridley Committee on National Fuel Policy. Appendix IV of this Report deals with smoke abatement. (H.M.S.O., 1952). 6s. 6d. (6s. 10d.)

63. **Air Pollution in Relation to Preventive Medicine.** Sir John Charles. The Fourth Des Vœux Memorial Lecture by the Chief Medical Officer, Ministry of Health. Reprinted from the Glasgow Conference Proceedings, 1953. 1s. 3d. (1s. 5d.)

64. **Fuel Conservation.** Report of a visit to the United States of America of a specialist team on the conservation of fuel heat and energy. Chapter 19 deals with air pollution. Published by the British Productivity Council. 5s. 0d. (5s. 3d.)

67. **District Heating.** The Report in two volumes of the Heating and Ventilation (Reconstruction) Committee of the Building Research Station in sufficient detail to be of immediate practical help in the designing of an actual district heating installation. (H.M.S.O., 1953). Parts I to V (Post-War Buildings Studies No. 31) 7s. 6d. (7s. 10d.)

Part VI (Post War Building Studies No. 32) 10s. 0d. (10s. 5d.)

(See also II, 3, 8, 61; VI, 36)

IX FOR TEACHERS

33. **The Smoke Problem and Science Teaching.** Experiments and material for introducing smoke abatement instruction into general science lessons. 3d. (5d.)

(*See also III*, 12)

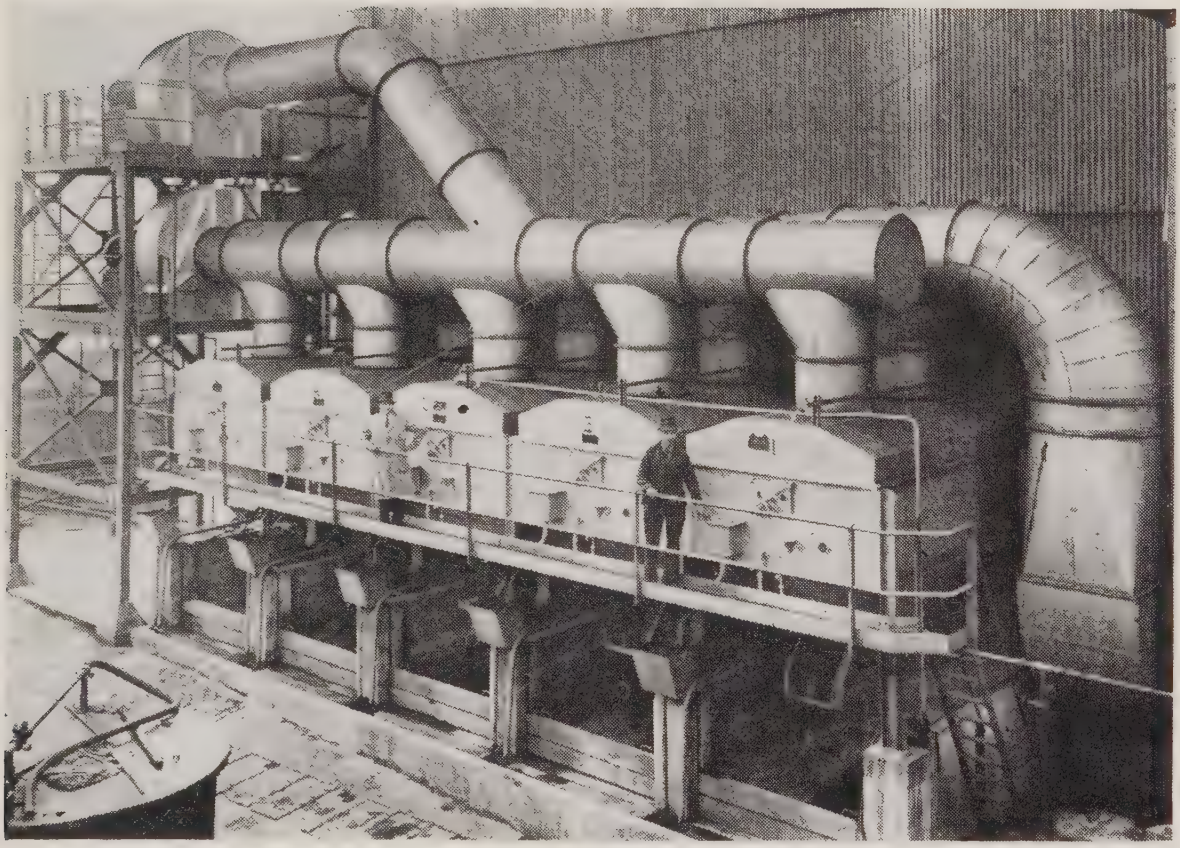
X OTHER INDUSTRIAL POLLUTION

56. **Annual Report on Alkali, etc., Works, 1951.** The most informative and up-to-date source of the situation and progress in respect of pollution from chemical and other special industrial processes. 88th Report. (H.M.S.O., 1952). 2s. (2s. 2d.)

68 **Annual Report on Alkali, etc., Works, 1952.** 89th Report. (H.M.S.O., 135). 2s. 6d. (2s. 8d.)

(*See also II*, 35, 47, 52)

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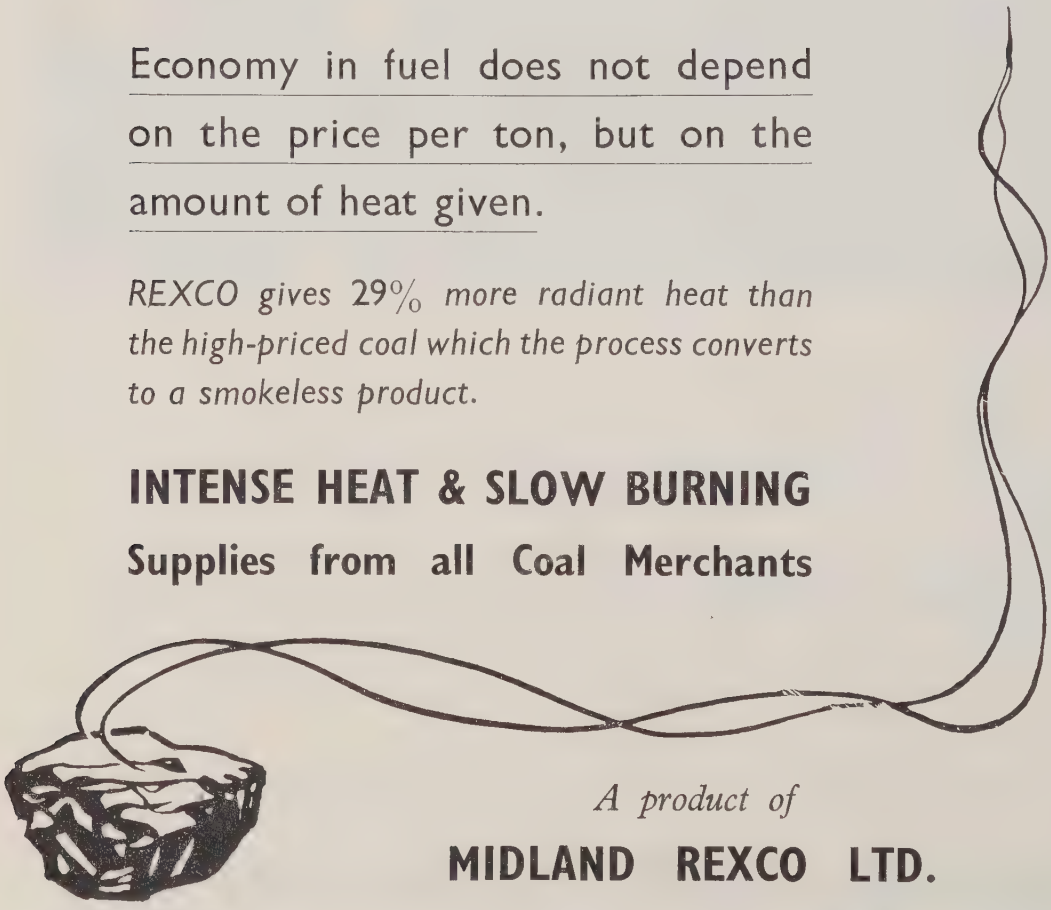
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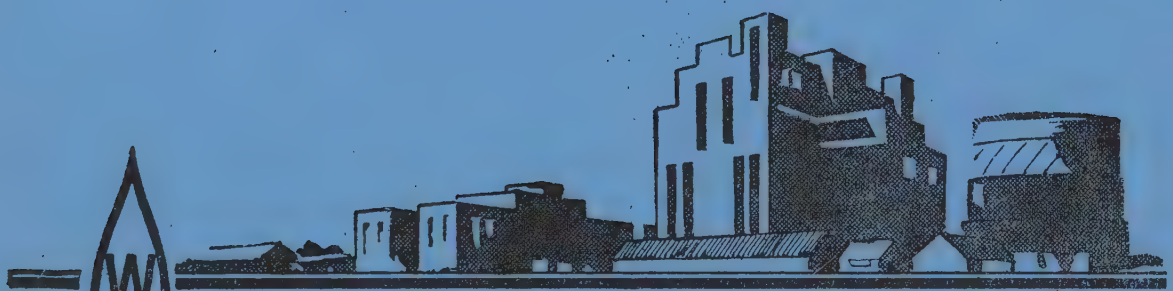
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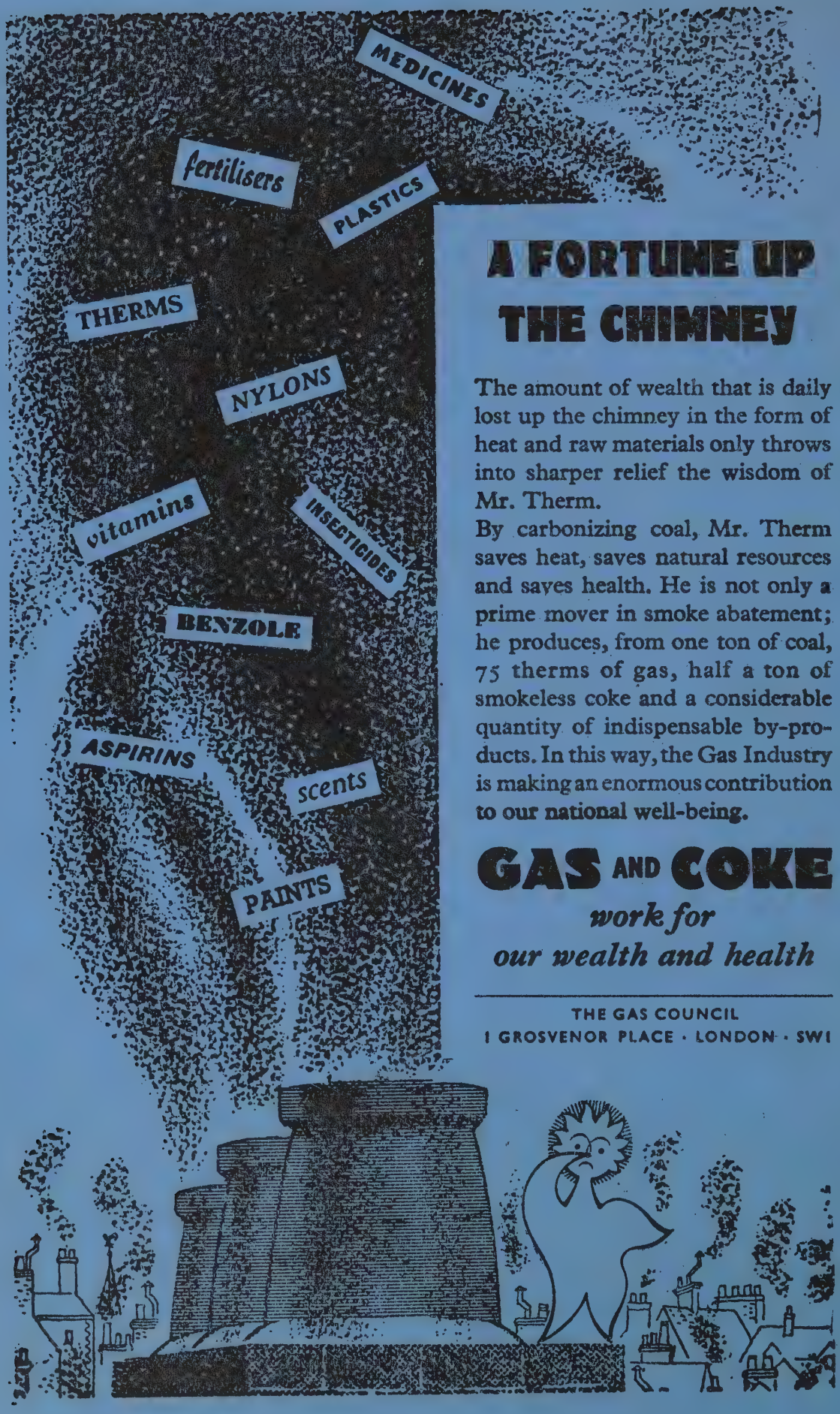
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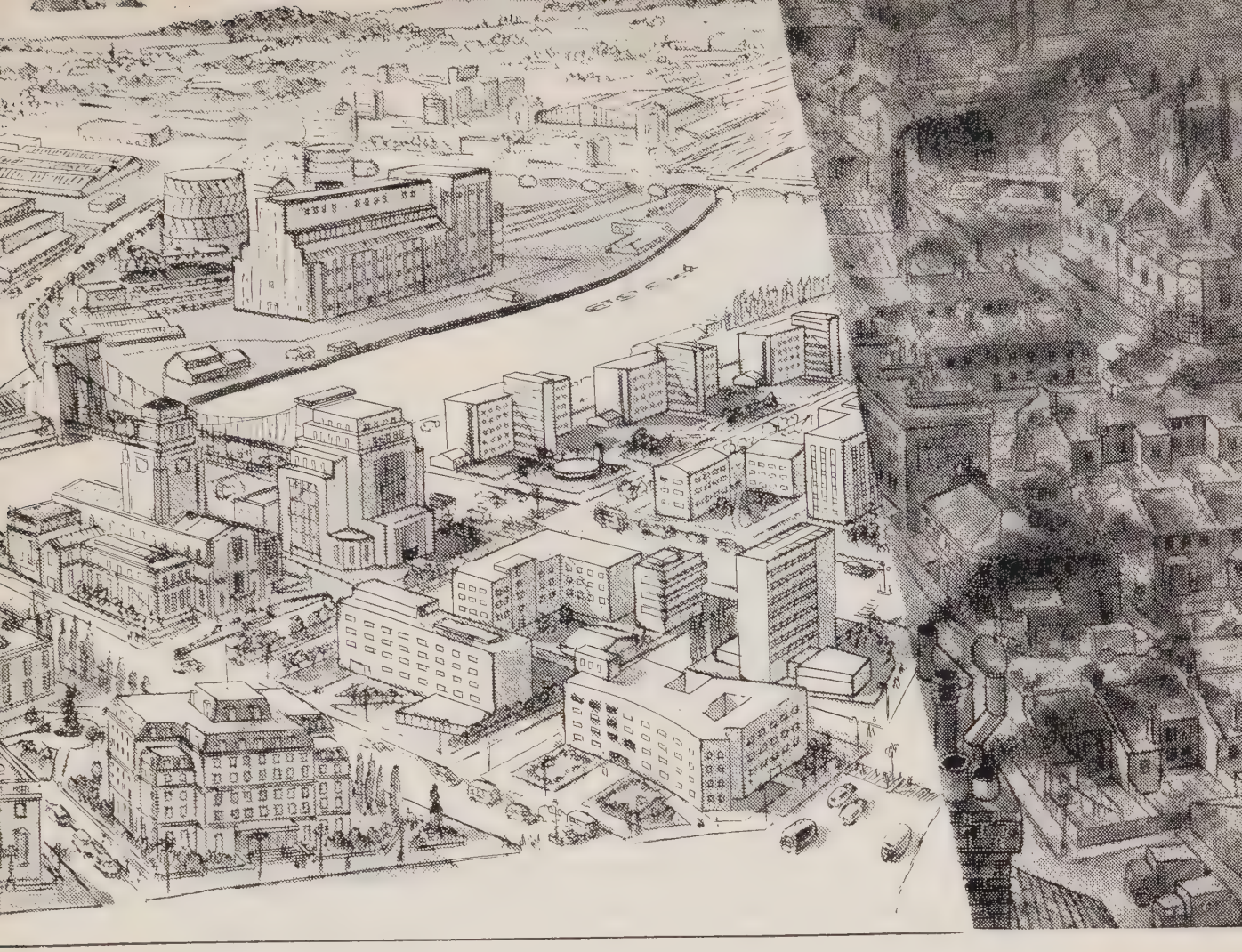
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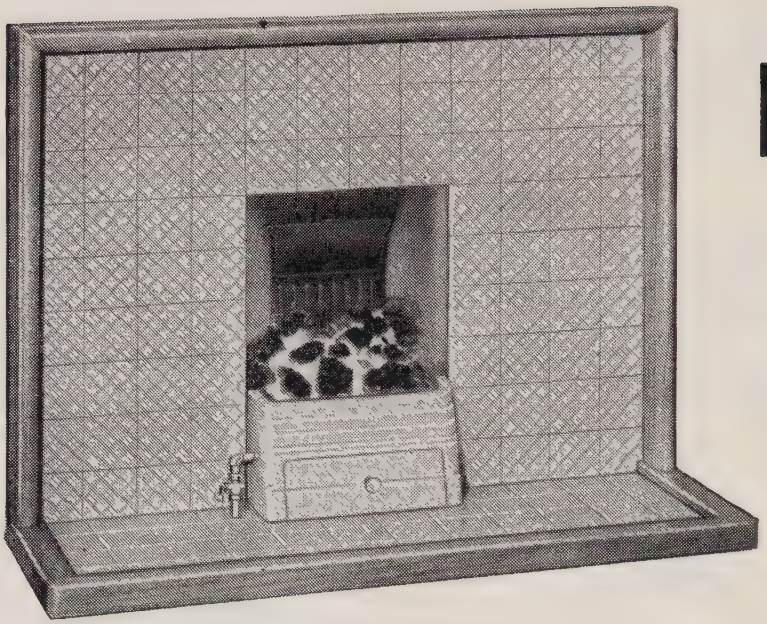
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NATIONAL SMOKE ABATEMENT SOCIETY

YEAR BOOK 1955

CONTENTS

N.S.A.S. Section

	Page
Officers of the Society	5
Divisional Councils	5
Executive Council	6
25th ANNUAL REPORT AND DIVISIONAL REPORTS	7
Information about the Society	16
Services to Members	17
The Covenant Subscription Scheme	18
Accounts for the year ended 30th June, 1954	19
Subscriptions List for the year ended 30th June, 1954	21
Affiliated Local Authorities	27

General Section

The Law Relating to Smoke, etc.	32
Recent Local Legislation	32
The Alkali, etc., Works Act	33
The Investigation of Atmospheric Pollution and other work of the Fuel Research Station	33
The National Industrial Fuel Efficiency Service	34
The City and Guilds of London Institute Examinations	35
The Beaver Report	35
Domestic Fuel Policy—The Simon Report	37
National Fuel Policy—The Ridley Report	38
The London Smoke Fog, December, 1952	40
Estimates of Pollution	41
Recent Papers and Reports: a Selected List	41
Directory of Organizations	45
Guide to Publications	49

Advertisers

British Electrical Development Association	43
Coalite and Chemical Products Ltd.	4
Drummond Patents Ltd.	55
Gas Council	30
General Electric Co. Ltd.	Outside Back Cover
Ideal Boilers and Radiators Ltd.	2
Midland Rexco Ltd.	56
Mirlees Watson Co. Ltd.	Inside Back Cover
N.I.F.E.S.	Inside Front Cover
Radiation Ltd.	29
Shorrock Superchargers Ltd.	53
Solid Smokeless Fuels Federation	44
West's Gas Improvement Co. Ltd.	54
Woodall-Duckham Construction Co. Ltd.	1

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Divisional Councils

Scottish

City Chambers, Glasgow (Central 9600 Ext. 421).
Chairman: Bailie W. Monteith.
Hon. Secretary: Norman Fraser.

North West

Health Department, Town Hall, Manchester, 2 (Central 3377 Ext. 339).
Chairman: H. V. Cass.
Hon. Secretary : H. Moore

North East

Sanitary Department, Council Offices, Ashington, Northumberland (Ashington 3210).
Chairman: Alderman J. Chapman, M.B.E.
Hon. Secretary: G. W. Tate, M.R.SAN.I., F.S.I.A.

Yorkshire

Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1 (Leeds 30211 Ext. 29).
Chairman: James Law.
Hon. Secretary: James Goodfellow, M.R.SAN.I., A.M.I.S.E.

West Midlands

67 Broad Street, Birmingham 1 (Central 7000 Ext. 442).
Chairman: Councillor Eric B. Gibbons.
Hon. Secretary: G. W. Farquharson, M.S.I.A.

East Midlands

Sanitary Inspector's Office, 50 Shakespeare Street, Nottingham (Nottingham 40584).
Chairman: T. Henry Turner, F.INST.M.
Hon. Secretary: A. Wade, M.B.E., F.R.SAN.I.

South East

Town Hall, Acton, London, W.3 (Acorn 3232).
Chairman: Alderman C. H. Smith, O.B.E.
Hon. Secretary: J. J. Matthews, M.R.SAN.I.

South Wales and Monmouthshire

Public Health Department, Dyfed Road, Neath (Neath 458).
Chairman: Cllr. Dr. C. A. Bence.
Hon. Secretary: Evan Thomas.

EXECUTIVE COUNCIL

Elected Divisional Representatives

Scottish Division

Mr. J. F. Anderson, Mr. J. Innes, Bailie W. Montieth.

North West Division

Dr. J. L. Burn, Dr. J. S. G. Burnett, Mr. H. V. Cass, Mr. S. N. Duguid, J.P., Mrs. L. Hayhurst, Mr. W. L. Mather, M.C., T.D., Alderman Professor F. E. Tylecote, J.P.

North East Division

Alderman J. Chapman, M.B.E., Alderman P. S. Hancock, O.B.E., Mr. P. C. G. Isaac.

Yorkshire Division

Dr. I. G. Davies, Mr. J. Goodfellow, Mr. J. Law, Mr. A. C. Saword.

West Midlands Division

Mr. G. W. Farquharson, Mr. W. L. Kay, Dr. W. R. Martine, O.B.E., T.D.

East Midlands Division

Councillor the Rev. A. Brooke Westcott, Mr. F. G. McHugh, Mr. A. Wade, M.B.E.

South West Division

Councillor Dr. C. A. Bence, Mr. F. J. Redstone, Mr. Evan Thomas.

South East Division

Mr. N. Bastable, Mr. H. G. Clinch, M.B.E., Miss M. Godby, Dr. R. Lessing, Mr. J. J. Matthews, Mr. G. Nonhebel, Dr. A. J. Shinnie, O.B.E., Mr. L. A. Stroud, Dr. W. C. Turner.

Appointed Representatives of National Bodies in Membership

Mr. M. G. Bennett (*British Transport Commission*).
Commander C. Buist, M.V.O., R.N. (Ret.) (*Low Temperature Coal Distillers Association*).
Mrs. D. M. Charlton (*Women's Advisory Council on Solid Fuel*).
Dr. T. P. Colclough, C.B.E., (*British Iron and Steel Federation*).
Mr. J. Cooke (*Solid Smokeless Fuels Federation*).
Dr. H. E. Crossley (*British Electricity Authority*).
Mr. V. W. Dale (*British Electrical Development Association*).
Dr. F. J. Eaton (*Institution of Gas Engineers*).
Dr. G. E. Foxwell (*Institute of Fuel*).
Miss J. Frith, O.B.E. (*Women's Gas Federation*).
Alderman Mrs. Gregory or Mrs. J. Falconer (*Electrical Association* for *Women*).
Mr. Leslie Hardern (*The Gas Council*).
Mr. H. R. Hodgson (*National Coal Board*).
Mr. H. S. Horsman or Mr. C. T. Melling (*Institution of Electrical Engineers*).
Dr. J. Johnstone Jervis (*British Medical Association*)
Nr. W. R. McGrath (*Sanitary Inspectors' Association*).

Co-opted to Technical Committee of the Executive Council

Mr. W. A. Damon (*Ministry of Housing and Local Government*).
Dr. C. Forrester (*Ministry of Fuel and Power*).
Mr. J. S. Hales (*British Coal Utilization Research Association*).

Chairmen of Committees

Technical: Dr. T. P. Colclough (*Deputy*, Mr. G. W. Farquharson).
Conference: Mr. J. J. Matthews.

TWENTY-FIFTH ANNUAL REPORT

for the Year ended 31st December, 1954

GENERAL REVIEW

The Beaver Report

The most important event of the year in the field of air pollution was, of course, the publication in December of the Final Report of the Committee on Air Pollution. This document has to be accepted as the most authoritative statement on the subject that can be expected for a considerable time to come and as the point of focus from which all future discussion and action will develop. In its analysis of the problem and the judgment made upon it, the report fully, and even vigorously, confirms the case as it has for many years been stated by the Society. The new examination and estimates of the cost of air pollution to the nation are especially valuable.

The recommendations for action are realistic in the sense that they are based on the Committee's appraisal of the practical steps that can and should at once be taken, and inevitably they include proposals that are open to criticism and fail to include proposals that many had hoped for. It seems, however, to be important to bear in mind that the recommendations may well be modified before they are implemented, and that in the meantime controversial discussion, where it is called for, will be useful and is to be welcomed.

Although, in this annual report, it is not possible to give the considered views of the Council of the Society on the recommendations, reference may be made to one consequence of importance that has already been achieved by the Report in the way hoped for by the Society. The memorandum to the Committee from the Council of the Society concluded by referring to the importance of public opinion on the question, and said " If the Committee accepts the view that the formation of public opinion is essential to the solution of the problem, then it is suggested that a first important step may be taken through its own report. This could provide an exceptional and most important opportunity for making a sharp and compelling impact in responsible quarters and among the public generally; an impact we believe to be urgently necessary."

To judge by the Press reaction, which taken as a whole may be regarded as a fair reflection of public opinion, the " impact " has been achieved to a remarkable extent. Both the daily and technical Press, with unusual unanimity, appear to have been so strongly impressed by the firmness and outspoken quality of the report that the importance and urgency of the problem has become more widely accepted than ever before. This constitutes an important step forward in the development of public opinion, provided that it can be maintained by keeping the question in the news.

Other Publicity

Apart from the exceptional publicity provided by the Beaver Report other publications and activities during the year, either directly or indirectly helping to create and extend public opinion, have been so numerous that it is not possible in a short report to refer to them all. Mention should be made, however, of the publication of the informative P.E.P. broadsheet, *The Menace of Air Pollution*, which attracted much attention and favourable reviews, the excellent Gas Council film, *Guilty Chimneys*, the inauguration of a new kind of area campaign to popularize the solid smokeless fuels, organized by the Solid Smokeless Fuels Federation, the holding of special meetings and conferences on air pollution by bodies not primarily concerned with the subject, the striking Gas Council advertisements on smog, a further special feature of great merit on smokeless zones in *Picture Post*, and numerous other articles on various aspects of the question

in the daily and periodical press. The greatly increased number of press cuttings received by the Society during the last few years continues, and reflects the much wider, and generally better informed, interest that is now taken in air pollution. During some months of the current year over a thousand cuttings have come in.

Technical and medical information on air pollution continues to be built up, particularly in relation to bronchitis and cancer of the lung, as will be seen from the references in the latter part of this Year Book to recent papers and reports, and from the reports that have been published in *Smokeless Air*.

Smokeless Zones

Progress in the establishment and planning of smokeless zones continues to be most gratifying, and new zones are now operating in Rochdale and Bolton, while others at Tottenham and Salford come into force at the beginning of 1955. This progress is largely due to the success of the Coventry and Manchester smokeless zones. It is gratifying to note that two successive extensions to the Manchester zone have now been announced.

The creation of smokeless housing areas, in which the use of smokeless fuel is made a condition of tenancy, is also meeting with success, and the first of these schemes, in Bradford and Nottingham, are to be followed by one at Woolwich. Others are also being considered.

THE SOCIETY

In a year that has not been without its difficulties the Society has been continuously active and has become stronger in both membership and financial resources, although it is still working under the handicap of desiring, and being expected, to do a great deal more than is at present financially possible. In view of its needs, some disappointment was felt at the absence of any reference to its work, and to the possibility of it being given assistance, in the Beaver Report. This was in marked contrast to the tribute and recommendations made so generously in the Productivity Council's Report on Fuel Conservation.

Although, as is shown by the statement of accounts which follows this report, income has increased, the amount available remains much too small to carry out as efficiently and effectively as might be possible a programme which includes the maintenance of a headquarters and eight divisional councils, publicity and information services for members and others, the issue of propaganda and more technical material, including for example this Year Book and the quarterly *Smokeless Air*, the holding of conferences and meetings, and the " back room " work necessary to keep us fully informed on all aspects of the subject, both at home and abroad, and about which inquiries are constantly being made.

The new phase in the long struggle for clean air that is now opening, by intensifying interest in the subject at all levels, is already increasing the Society's work and opportunities, and this process may be expected to continue. It therefore becomes increasingly important that new support should be secured.

Memorandum to the Beaver Committee

A memorandum was prepared and submitted to the Beaver Committee in which was stated the Society's views and its proposals for action. The memorandum was printed and subsequently published, both as a pamphlet and in *Smokeless Air*. Copies were sent to the Press and a considerable number of reports and reviews were published.

The Annual Conference

The conference, at Scarborough in September, was marked by the highest attendance of any, there being present a total of 490 members and delegates. 211 local authorities and 52 other organizations were represented.

The programme included an address by Sir Hugh Beaver, the Des Vœux Memorial Lecture by Sir Edward Salisbury, Director of the Royal Botanical Gardens, Kew, the Presidential Address by Sir Ernest Smith, a paper on the problems of railway smoke by Mr. R. F. Harvey, Chief Motive Power Officer of British Railways, and, with Dr. W. A. Macfarlane, Director of N.I.F.E.S., in the Chair, papers on the industrial uses of gas and electricity, read respectively by Mr. R. F. Hayman of the Gas Council and Mr. J. I. Bernard of the

Electrical Development Association. Discussions were full and informative. The new smoke abatement film, "Guilty Chimneys," produced by the Gas Council, was shown and was warmly approved, together with a new Central Council for Health Education film strip. The following resolution was passed:

> "That this Conference of the National Smoke Abatement Society calls upon the Minister of Housing and Local Government and Secretary of State for Scotland to promote early legislation granting permissive powers to local authorities to establish smokeless zones, thereby obviating the necessity for the promotion of Private Bills."

Officers and Council

At the annual general meeting in Scarborough, at the conclusion of the Conference, the re-election of Sir Ernest Smith as President and Hon. Treasurer was announced. Two new vice-presidents were elected: Dr. Harold Hartley, C.B.E., and Mr. T. C. Finlayson. Dr. W. R. Martine was re-elected by the Executive Council as its Chairman, with Alderman Professor F. E. Tylecote and Mr. F. J. Redstone as Deputy Chairman. Newly-elected members of the Executive Council are Councillor Dr. C. A. Bence (Cardiff), Mr. H. V. Cass (Oldham), Mr. W. L. Kay (Smethwick), Bailie W. Montieth (Glasgow), Mr. Evan Thomas (Neath), and Dr. W. C. Turner (Chelsea). Retiring members, who were thanked by the Council for their services, are Mr. G. W. Dhenin, Mr. F. R. Jefford, Alderman T. M. Larrad, Mr. H. L. Snowden and Mr. C. A. Stansbury. Including the honorary officers and the appointed representatives of national organizations in membership, the Executive Council now numbers 52 members.

The Conference and Technical Committees have continued to meet. At its first meetings after the annual elections the Technical Committee elected Dr. T. P. Colclough as its Chairman, in succession to Dr. R. Lessing, who did not seek re-election. Dr. Lessing had been Chairman of the Committee since it was set up in 1946, and a vote of thanks to him for his many services was expressed by its members. Mr. J. J. Matthews has been re-elected Chairman of the Conference Committee.

The Divisions

The reports from the hon. Secretaries of the Division Councils which follow record their many activities. At the annual general meeting at Scarborough a resolution was passed by which the South West Division was divided into a South West and a South Wales and Monmouthshire Division. Members of the new Division have since met and established a Divisional Council. There are thus eight Divisional Councils in existence, covering the whole of Great Britain with the exception of the South West Region. Membership there is mainly in the Bristol area, which has an advisory local authority regional committee that is itself a member of the Society. The new South East Division, which is the largest of all in membership, is now firmly established.

As will be seen from the North East report, this Division is still seriously handicapped by the ruling which limits its meetings to one a year. It is difficult to see how this unfortunate restriction, based on a narrow and unsympathetic interpretation of the law relating to the expenses of local authority representatives, may be overcome, despite the fact that no other part of the country is so affected.

Obituary

It is with the deepest regret that we have to record the deaths during the year of a Past-President, Sir George Elliston, M.C., two Vice-Presidents, Bailie Violet Roberton and Sir Edward Keeling, M.P., the President of the Scottish Division, Bailie John H. P. Taylor, and the Secretary of the Society, Mr. Victor R. Silver. Although more extended notices have been, or will be, published in *Smokeless Air*, the opportunity must be taken of acknowledging in this annual report the many services that were done, in diverse ways, by each of these good friends.

Mention has already been made of the death, in September last, of Mr. V. R. Silver, who had been with the Society since 1945 and had been appointed Secretary in 1953. He was a most loyal and able officer, liked and respected by all whom he met, and had been an invaluable member of the small headquarters team during the years of growth and increasing responsibility. As one of the two executive members of the staff his death meant also the sudden loss of his knowledge and experience, especially in the departments with which he was most closely concerned. There has therefore been a period of some difficulty,

which is, however, now being overcome. In November, Mr. Lawrence Nevard, who is a graduate of Nottingham University with a degree in Social Administration, was appointed with the designation for the time being of Assistant Secretary.

There have been no other staff changes, and mention may perhaps be made of those members whose names do not usually appear in this report, with an appreciative tribute to their services: Mrs. D. M. Wolfe, Mrs. J. Tutton, Mrs. S. Burden and Mr. A. Parker.

The H.Q. Offices

As stated in the last report the headquarters office was being transferred from Buckingham Gate to larger premises in Grosvenor Place. The move was made as soon as the rehabilitation of the building, which had been slightly bomb-damaged and since unoccupied, was completed. It was known that at some future date the block of which the building formed a part was to be demolished for rebuilding, but it was clearly understood that there were no immediate plans for this and that they were not anticipated for some years to come. It was therefore with dismay that the Society and other tenants received notice in September from the superior landlords (Associated Electrical Industries Ltd.) that redevelopment would begin in 1955 and that the premises must be vacated by 24th June. Representations have been made, both by the principal tenant (who is the Society's immediate landlord) and by the Society itself, on this abrupt and unanticipated development, but without success. It has therefore become necessary for a search to be begun for new accommodation.

Publications

The four issues of *Smokeless Air*, the 1954 *Year Book*, the *Memorandum to the Beaver Committee*, and the *Glasgow Conference Proceedings* were the principal publications prepared and issued during the year. In addition there have been further printings of the popular " give-away " leaflet *Facts about Smoke.*

Smokeless Air, for which there is now never any dearth of copy, appears to be appreciated by members and other readers, and it is believed that the information now contained in the *Year Book* makes this of value to many as a reference handbook. If more staff time could be allocated to securing further advertising the scope of both publications could be increased. It should be borne in mind that these publications are issued not only for the information of members, but are important means of securing publicity and for spreading information and creating new interest.

There is a small but continuous sale of other publications of the Society, the stock of some of which is becoming exhausted, so that new editions will be called for very shortly. These include *Guilty Chimneys*, Steer's *Law of Smoke Nuisances* and John Evelyn's *Fumifugium.*

Services

The growth and increasing influence of the Society in recent years, together with the evolution of public opinion on air pollution, has led to a marked change in function. Originally the Society was a small body of people concerned to make the indifferent majority recognize the existence of the air pollution problem. Response was rare and slow to come. Today, although the majority of the public may still be indifferent, the number of those who are interested is growing rapidly, and among these the Society is regarded as an organization existing to assist them in all manner of ways, freely and promptly. This is a valuable and encouraging development, and it is necessary for the Society to respond to the best of its ability. The services asked for, however, call for resources and equipment which the Society either does not possess or has only to a very limited extent. Exhibition materials, films and film strips, posters, photographs, and information and propaganda publications are among the more obvious items for which both material and staff are needed. Requests for advice, complaints about nuisances, technical and scientific references, assistance to journalists and other writers, including students, and generally a complete and up-to-date intelligence service, are among the items which call mainly for staff time, experience and organization—and consequently for increased resources.

All these services are called for without any publicity inviting their use. There is little doubt that they could be greatly increased by means of suitable publicity, and desirable though this is in principle it could not be undertaken until the resources of the Society have been built up more satisfactorily.

Publicity

The Society received a considerable amount of Press and other publicity

during the year, which is valued both for the sake of the organization and for the reiteration of the theme of clean air which it assists and which is so important a factor in the establishment of the subject of air pollution in the public consciousness as a matter of primary importance. There was a record number of Press reports on the Scarborough Conference (480), excellent reports and comments on the Memorandum to the Beaver Committee (80) and numerous other references and reviews, including many on *Smokeless Air*. Press publicity remains practically the only means the Society can afford for directly reaching the whole of the public.

W. R. MARTINE, *Chairman.*
ERNEST SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *Director.*

SCOTTISH DIVISION

During the past year, the Division has lost the services of two of its most outstanding members. Bailie John H. P. Taylor was Chairman of the Scottish Division from 1950 until his death in April. His hearty, energetic personality provided a strong leadership for the Division and his counsel in the Scottish affairs of the Society, as well as at National Executive Council meetings in London, will be sadly missed. Bailie Violet M. C. Roberton, C.B.E., LL.D., was a lady of wide interests who had given her life to public service in Scotland. She was a member of the Scottish Division of the Society for many years and had served on the National Executive Council. Her loss will be felt as deeply by the Society as by many other organizations with which she was connected in all spheres of public service.

The annual conference of the Scottish Division was held this year in Kirkcaldy, where hospitality was extended by the Town Council. The meetings were held in the Art Gallery and Museum and the papers were of a very high standard. On the afternoon of the second day a film show was provided and, in addition, the Town Council conveyed the delegates by bus for an inspection of the features at the new town of Glenrothes.

During the past year, a number of interesting and well-attended meetings have been held and at the last meeting the Division agreed to collaborate with the National Industrial Fuel Efficiency Service in a campaign to press for the implementation of the recommendations contained in the Beaver Report.

NORMAN FRASER, *Hon. Secretary*

NORTH WEST DIVISION

Steady, if not spectacular, progress has been maintained during 1954. Perhaps it could best be described as a period of anticipation because the case for smoke abatement had been put and investigated by the Beaver Committee whose verdict was awaited with keen interest. We have not been disappointed for the recommendations, in the main, point the way to a considerable reduction in atmospheric pollution, particularly in densely populated areas. The Society must now exert its fullest influence to secure implementation of the proposals at the earliest opportunity.

Three business meetings of the Divisional Council have been held. At Blackburn, early in the year, our meeting coincided with the inaugural meeting of a local Smoke Abatement Committee which we hope will be as successful as other similar Committees in the Division. The other two meetings were held in Manchester which was also the venue for a special Committee set up to consider future activities.

The Divisional Council also had the opportunity, by courtesy of the Salford Council, to meet the members of the Beaver Committee during their tour of the country, and discuss the various aspects of the problem in an informal atmosphere.

A special attraction at the annual general meeting was an address on " Gas Coke " by the Secretary of the N.W. Gas Board, Mr. S. G. Deavin, and it was surprising that such a controversial subject did not inspire a larger attendance and more spirited discussion. All members of the Division had the opportunity to visit the modern Gas Works at Salford in November at the invitation of the Gas Board. The Chairman, Mr. D. P.

Welman, in an interesting address encouraged Local Authorities to develop smokeless zones with an assurance that the supply of gas coke would be equal to the demand.

Meetings with the Institute of Fuel have continued to be held as in former years and have been much appreciated. In October, Dr. W. A. MacFarlane at the Manchester Centre, told us of his work in America and outlined the policy of the new National Industrial Fuel Efficiency Service which is operating under his direction. At Liverpool, David Gunn, Esq., of B.C.U.R.A., delighted an audience with his talk on " Shell Boilers." His facile way of explaining points to his questioners inspired admiration. The event was worthy of better representation from the Society.

Earlier in the year we had been privileged to hear Dr. J. Bronowski speak on " Energy in the Future." He made some striking comparisons of industrial development in the U.S.A. and the U.K. and expounded on the prospective contribution from atomic energy to meet an ever-increasing demand for energy.

The Division is pleased to record its high appreciation of the services rendered by Dr. J. S. G. Burnett who has relinquished the office of Chairman after three years in that office and four years previously as Vice-Chairman. We are glad to know that we shall continue to have his undiminished interest. His successor is the former Vice-Chairman, Mr. H. V. Cass, Chief Sanitary Inspector, Oldham C.B., who will be supported by Mr. S. N. Duguid. Both are well known in smoke abatement circles and we feel that under such guidance, the Division should go from strength to strength.

H. MOORE, *Hon. Secretary.*

NORTH EAST DIVISION

The only meeting it was possible to hold was the annual meeting, which took place in King's College, Newcastle-upon-Tyne, on 15th October, 1954, and was very well attended. Professor Cassie, of the Department of Civil Engineering, introduced the Rector of King's College, Dr. C. I. C. Bonsanquet, who welcomed the delegates. In the absence of Alderman Chapman because of illness the Chair at the morning session was taken by Dr. J. Tilley, Northumberland County. Mr. Tate, the Hon. Secretary, reported on the latest position relating to meetings of the Division, and after discussion the following resolution was passed:

" That the North East Divisional Council of the National Smoke Abatement Society at its annual meeting in Newcastle-upon-Tyne on 15th October, 1954, expresses its strong disapproval of the action of the Minister of Housing and Local Government in continuing to enforce the restriction of meetings of this North East Divisional Council."

At the afternoon session, with Alderman A. J. Best of Darlington in the Chair, a paper was read by Mr. Peter C. G. Isaac, Lecturer in Public Health Engineering, King's College, on " The Effects, Measurements and Control of the Atmospheric Pollution due to Combustion." The paper was most informative and stimulated a full discussion and questions. Members were afterwards the guests of the Department for tea

G. W. TATE, *Hon. Secretary.*

YORKSHIRE DIVISION

The year 1954 has again seen considerable progress in the creation, by publicity and education, of informed opinion with regard to the importance of unpolluted air. The press have been invited to be present at each of the meetings of the District Council, and usually these meetings were followed by a visit of some educational significance with regard to clean air.

The first meeting was held in Leeds on 8th March, 1954. This meeting of elected members only was held at the offices of the Public Health Department. Fourteen organizations were co-opted to the Divisional Council. Matters under discussion by the 12 members present were: the Society's Draft Report to the Government Committee of Inquiry on Atmospheric Pollution; Press Publicity, in view of this year's Annual Conference being held in Yorkshire; and the paper given by Professor Davies at the previous Annual General Meeting. Arrangements

were also made for the joint visit with the East Midlands Divisional Council at Rawmarsh.

On May 3rd, the second meeting was held at Rawmarsh. The Directors of the Park Gate Iron and Steel Co. Ltd., very kindly put their Conference Centre at the disposal of the Yorkshire and East Midlands Divisional Councils for their business meetings on the occasion of their joint visit to the Park Gate Works. Members were pleased to renew acquaintance with Mr. T. Henry Turner, a former Chairman of this Division and now Deputy Chairman of the East Midlands Divisional Council. Seventeen members attended the meeting at which various matters were discussed. The East Midlands Divisional Council then held their business meeting under the Chairmanship of Councillor A. Mead. Mr. Woodifield, Managing Director of the Park Gate Works introduced Dr. D. F. Marshall, Assistant Works Superintendent, who gave a paper on " Metallurgical Processes and their effect on Atmospheric Pollution." A brisk discussion followed during which Mr. Woodifield and Dr. Marshall answered many varied questions from members of both Divisional Councils. The two Divisional Councils were entertained to lunch before making a very interesting and instructive tour of both the old and new portions of the vast Park Gate Works.

The venue for the third meeting, which was held on July 12, was Tingley. At the kind invitation of the North Eastern Gas Board the Divisional Council visited the Tingley Gas Works to hold this meeting. The attendance was 20 including two representatives of the Press. During this meeting the Council agreed to share the sponsorship with the West Riding of Yorkshire Regional Smoke Abatement Committee, of the Domestic Smoke Campaign in the West Riding organized by the Solid Smokeless Fuels Federation. After discussing the programme for the next session members heard papers by Mr. H. Johnston, Chief Engineer on " Tingley Works and Smokeless Fuel Production " and by Mr. N. Hudson, Chief Commercial Officer on " Marketing and Usage of Smokeless Fuels." The Council were entertained to lunch in the Works Canteen and afterwards made a very instructive tour of the works under the guidance of Mr. L. W. Roberts, the Grid General Manager at Tingley.

The fourth meeting of the session was held on 29th November at the offices of the Public Health Department, Leeds, at which the programme for the 1954-55 session was discussed in detail.

Many members of the Divisional Council have continued lecturing to varied organizations in the area during the year and report increased interest in methods for ensuring a cleaner atmosphere. We are also pleased to report a continued increase in local authority membership.

At our seventh annual general meeting held in Leeds on 29th November, 1954, attended by 40 delegates, a feature of the meeting was an involuntary discussion of the Beaver Report, which led up to the unanimous passing of resolutions calling for legislation to strengthen the hand of local authorities with regard to the securing of clean air. At the conclusion of the annual general meeting all members present were taken on a visit of inspection to see the heating and ventilation plant at the Civic Hall, Leeds, which is entirely smokeless.

JAMES GOODFELLOW, *Hon. Sec.*

WEST MIDLANDS DIVISION

Membership changes remained practically static, and the loss of income to the Society by reason of the reduced subscription from a County Council was offset by the contributions from an industrial concern. Until the recognition of the Society's position as a public opinion forming body is recognized on a Government level, and financial aid is forthcoming from that quarter, the Society and Divisional activities will always be limited.

During the year the Management Committee have continued their policy of widening interest in all matters relating to the Society's aims and ideals. The annual general meeting in April was well attended despite the clashing of dates with a well advertised meeting of another body interested in fuel efficiency and smoke abatement. Our meeting was held in April at the Botanical Gardens, Birmingham, in delightful surroundings, and the members were addressed by Dr. P. F. Wareing, Department of Botany, The University, Manchester, on the subject of

" Atmospheric Pollution and Plant Growth "; splendid examples of actual plant growth taken from various parts of the area, were on show, thanks to the co-operation of the officers of the Birmingham Parks Department. The comparison of specimens taken from polluted and unpolluted areas was sufficient to convince any sceptic, and added additional interest to the address.

The Divisional Deputy Chairman, Councillor E. B. Gibbons of Brierley Hill, who is also Chairman of the Institute of Fuel, Midland Section, for the session 1954-1955, gave his inaugural address to the Institute Members, a paper on " Fuel and the Ceramic Industry." This subject was of particular interest to our members and due support was given. The members of the Midland Branch of the Institute of Fuel acted as hosts to our members, and the members of the Birmingham Branch of the Institution of Heating and Ventilating Engineers, on 16th December, when Dr. A. Parker, C.B.E., Director of Fuel Research, gave his address on " Social and Industrial Consequences of the Presence of Sulphur in Fuels." Many of our representatives attended and as usual benefited from the knowledge and views expressed by the speaker.

At the beginning of the year, on behalf of the Management Committee, members of the Rotary Club, Birmingham, were addressed on " Smoke Abatement in the Midlands," by the Divisional Secretary who also contributed to a forum series of articles for a Wolverhampton paper, on the subject of " Smog." Inquiries dealt with by the Committee have included the giving of advice to members and non-members on smoke, dust and effluvia problems, and the supplying of the Society's literature. Inquiries from non-members, especially industrial firms, are most welcome as the Management Committee look to this source as fertile ground for new members.

A summary of the final report of the Committee on Air Pollution has, up to the time of writing this report, not yet been considered by a Divisional Members Meeting, but it is interesting to note that the analysis of the replies received from our members concerning their views to be embodied in the Society's memorandum of evidence to the Air Pollution Committee, indicated that such matters as promotion of new legislation, implementation of a national solid smokeless fuel policy, obligatory prior approval, and the elimination of private Acts for smokeless zones, were some of the major items on which the memorandum should be based.

This indicates the advisability of the Society obtaining the views of the Divisional Members in all matters relating to a national policy. To sum up, one can say that progress has been maintained, and there is a definite indication that public opinion is slowly awakening to the ideals of the Society to create by publicity an informed national opinion on the value and importance of clean air.

G. W. FARQUHARSON, *Hon. Secretary.*

EAST MIDLANDS DIVISION

The influence of the Society in the East Midlands continued to increase during 1954. Requests for literature and information were received from many sources and addresses to interested organizations were arranged.

With a view to improving the Divisional organization, a sub-committee was appointed to consider amendments to the Rules and Constitution which had been in operation since the formation of the Division in 1949. The extensive area within the prescribed boundaries of the " East Midlands " and the difficulties of travelling are features which are receiving the consideration of the Divisional Council.

The Division met on three occasions during the year:

Loughborough, 25th March, 1954: Members visited the Engineering Workshops of the Loughborough College of Technology by arrangement with Dr. H. L. Haslegrave, Principal of the College of Technology. The Mayor of Loughborough (Alderman Dennis Smalley) and the Chairman of the Health Committee (Alderman A. Perkins) welcomed the delegates. An address entitled " The Role of Sulphur Dioxide in Atmospheric Pollution " was delivered by Mr. Graham, Oldham, B.SC., F.R.I.C., A.M.INST.F., and there was also a discussion, opened by the Honorary Secretary, on the Interim Report of the Beaver Committee.

Rotherham, 3rd May, 1954: A joint meeting with the Council of the Yorkshire Division at which an address was given by Dr. D. F. Marshall, entitled " Metallurgical Processes and their Effect on

Air Pollution." The meeting was held by invitation of the Directors of the Park Gate Iron and Steel Co. Ltd. and included a tour of the Park Gate Works.

Belper, 8th July, 1954: Annual General Meeting at which Mr. T. Henry Turner was appointed Chairman of the Division for the year 1954-55 and Alderman Cooper was elected Deputy Chairman. Members toured the works of Park Foundry (Belper) Ltd. by invitation of Mr. W. A. Ballard, Managing Director. Delegates were officially welcomed to Belper by the Chairman of the Belper Urban District Council (Councillor Mrs. M. Berkin, J.P.).

A. WADE, *Hon. Secretary.*

SOUTH EAST DIVISION

The first regular meeting of the new South East Division was held at the Royal Sanitary Institute on 10th June, when about 60 members were present. An address on "The Local Authority and Air Pollution" was given by H. G. Clinch, M.B.E., who was followed by A. Ellis Holt, Sales Manager of Radiovisor Parent Ltd., deputising for G. A. G. Ive, Technical Director of the company. Mr. Holt gave a very informative talk on "Electrical Photo-cell Smoke Density Equipment," followed by a demonstration of the apparatus itself. There were questions and discussion on both addresses before the close of the meeting.

The annual general meeting of the Division was held in the Caxton Hall, Westminster, on 15th July, and again was well attended. Dr. Andrew Shinnie, who had agreed to act as Chairman during the inaugural period, did not wish to be renominated for this office, and Alderman C. H. Smith, O.B.E., of Wembley, was elected. Dr. Shinnie agreed to act as Deputy Chairman, and J. J. Matthews Chief Sanitary Inspector, Borough of Acton, was re-elected Hon. Secretary.

The business meeting was followed by an address by G. E. Hall, Technical Officer to the British Coking Industry Association, on "Solid Smokeless Fuel and Smokeless Zones." This was followed by a number of questions and discussion.

Since the formation of the Division a series of Provisional Committees and Council Meetings under the chairmanship of Mr. H. Bestable of Barking has been held as necessary, and a full programme of meetings and interesting visits by members and representatives is in course of preparation for the ensuing year. The Division is now well under way.

J. J. MATTHEWS,
Hon. Secretary.

SOUTH WALES AND MONMOUTHSHIRE DIVISION

A South Wales and Monmouthshire Division was formed at the annual general meeting of the Society in Scarborough on 24th September, 1954, and a meeting of members and representatives in the Division was held at Cardiff on 3rd December. It was unanimously agreed to set up a Divisional Council, and a provisional committee was elected to draft a constitution for submission to a subsequent meeting. Councillor Dr. Bence (Cardiff) was elected as Chairman of this Committee, Councillor D. J. Fisher (Swansea) as Deputy Chairman, and the undersigned as Hon. Secretary. The meeting, which was attended by over seventy representatives, was welcomed by the Deputy Lord Mayor of Cardiff, who consented to preside over the meeting.

EVAN THOMAS, *Hon. Secretary.*

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, offices, Executive Council and Committees, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East, (10) South Wales and Monmouthshire. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are " to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given in next column.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal *Smokeless Air*, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 15s. 0d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations:

Less than 25,000 ..	3	guineas
25,000 to 50,000 ..	4	,,
50,000 to 75,000 ..	5	,,
75,000 to 100,000 ..	7	,,
100,000 to 250,000 ..	12	,,
250,000 to 500,000 ..	18	,,
Over 500,000 ..	30	,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 12 guineas for members appointing two Representatives ; not less than 7 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for *Smokeless Air* and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows:

Less than 100,000 ..	.. 2
100,000 to 250,000 ..	.. 3
250,000 to 500,000 ..	.. 4
500,000 and over ..	.. 5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides and Film Strips

A collection of lantern slides is available and slides may be borrowed at a charge of 1d. per slide per lecture, plus registered postages. Film strips are at present in course of preparation.

Films

The Society does not at present possess films of its own but will be glad to suggest appropriate films that may be available from other sources.

Exhibits

The Society is prepared to consider participating in exhibitions and has material available for loan. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties material can be loaned more conveniently if it can be collected from and returned to 30 Grosvenor Place by car or van. Carriage costs are charged where material is sent by public transport.

Posters

The following posters are available: (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 2s. 6d. per set. (2) Prize-winning photo-colour poster 30 in. — 20 in. Price 6d. each. (3) New Pictorial chart primarily for school use. " These are the Things that Smoke Does," 30 in. × 20 in. Price 1s. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising several hundred subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name).....*of*.....
(address)..... (description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of 30 Grosvenor Place in the City of Westminster, that for a period of seven years from the first day of....., 195...., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of.....195.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) ..... } (Signature) .....
Address .....
Occupation .....

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1954

Year ended June 30th, 1953	INCOME							
£						£	s.	d.
5,390	Subscriptions—General					6,465	12	10
—	Special Subscriptions for Limited Period					1,400	14	6
222	Sale of Literature					634	9	5
62	Repayment of Income Tax					75	9	8
	£		£	s.	d.			
	887	Conference Fees	951	4	0			
	491	*Less* Expense and Printing	767	12	4			
396	—					183	11	8
24	Sundry Receipts					38	1	2
53	Income from Investments					63	3	1
£6,147						£8,861	2	4

Year ended June 30th, 1953	EXPENDITURE							
£						£	s.	d.
2,836	Salaries and Fees					3,133	5	3
515	Rent, Rates, Gas, Water and Heating					1,049	1	6
177	Office Supplies and Stationery					171	8	1
34	Travelling Expenses					47	8	4
690	General Expenses, Postage, Telephone and National Insurance					944	16	10
310	Divisional Expenses					305	0	0
	£		£	s.	d.			
1,231		Printing *Smokeless Air*	1,385	4	11			
612		*Less*—Receipts from Advertisements	860	7	11			
619	—					524	17	0
432	Printing and Publishing Booklets, etc.					717	3	3
—	Decorating and Dilapidations					245	5	5
119	Staff Pension Scheme					255	1	10
25	Furniture and Fittings					351	17	5
390	Excess of Income over Expenditure					1,115	17	5
£6,147						£8,861	2	4

Balance Sheet June 30th, 1954

£		£	s.	d.	£	s.	d.
	SURPLUS ACCOUNT						
2,064	Balance as at June 30th, 1953	3,030	16	3			
—	*Add*—Legacy—F. N. Weightman Deceased	1,350	0	0			
390	Excess of Income over Expenditure for year to date	1,115	17	5			
577	Transfer Defence Bond Fund	—					
3,031					5,496	13	8
	CONFERENCE 1954—SCARBOROUGH						
	£						
	353 Fees received in advance	333	18	0			
	28 *Less* Printing	30	8	2			
325	—				303	9	10
1	Subscriptions in advance				250	0	0
£3,357					£6,050	3	6

£		£	s.	d.	£	s.	d.
	INVESTMENTS (at cost)						
	Commercial Union Assurance Co.—						
206	£25 Stock	205	11	0			
	British Transport						
279	£371 9s. 10d.—3% Guaranteed Stock 1978/88	279	5	11			
846	Post Office Savings Bank	863	19	0			
543	Manchester and Salford Savings Bank	558	7	3			
580	3½% Defence Bonds	580	0	0			
—	Social Service Supplies Ltd. Loan	100	0	0			
—	do. One 10s. Share		10	0			
					2,587	13	3
893	Cash at Bank and in hand				3,452	10	4
10	Electricity Deposit				10	0	0
£3,357					£6,050	3	6

August 9th, 1954.

Audited and found correct,
ABBOTT & SON, Chartered Accountants,
40, South King Street, Manchester, 2.

NATIONAL SMOKE ABATEMENT SOCIETY

Summary of Divisional Accounts

Division	*Year Ended*	*Commencing Balance*	*Grants*	*Other Income*	*Total*	*Expenditure*	*Closing Balance*
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Scotland	31.3.54	275 3 9	100 0 0	(*a*) 80 4 3	455 8 0	(*a*) 164 14 9	290 13 3
North West	31.3.54	110 5 7	65 0 0	10 9	175 16 4	59 13 6	116 2 10
North East	31.5.54	95 11 8	—	2 7 6	97 19 2	12 12 10	85 6 4
Yorkshire	30.6.54	53 1 1	(*b*) —	4 0	53 5 1	39 13 8	13 11 5
West Midlands	30.6.54	*Dfct.* 1 16 11	50 0 0	—	48 3 1	40 9 0	7 14 1
East Midlands	31.3.54	1 8 5	30 0 0	—	31 8 5	29 14 9	1 13 8
South East	15.7.54	—	60 0 0	—	60 0 0	55 0 3	4 19 9
Total ..	.. ..	533 13 7	305 0 0	83 6 6	922 0 1	401 18 9	520 1 4

NOTES

(*a*) Includes fees and expenses for Conference and Firemen's Classes.

(*b*) Grant of £50 for 1953 received March, 1953.

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1954

* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation	5	5	0
Airdrie Corporation	4	4	0
Ardrossan Corporation	3	3	0
Arnott, J. E.		15	0
Ayr Corporation	3	3	0
Barrhead Corporation	3	3	0
British Electricity Authority—			
South East Scotland Division	12	12	0
South West Scotland Division	12	12	0
Clackmannan County Council	3	3	0
Clydebank Corporation (1953)	6	6	0
(1954)	6	6	0
Coatbridge Corporation	4	4	0
Currie, T. S.		15	0
Dumbarton Corporation	3	3	0
Dumbarton County Council	12	12	0
Dundee Corporation	12	12	0
Dunfermline Corporation	4	4	0
Edinburgh Corporation	21	0	0
Falconer, Mrs. J.		15	0
Falkirk Corporation	4	4	0
Glasgow Corporation	30	0	0
Glasgow Tree Lovers' Society	1	1	0
Glasgow Women Citizens' Association	1	1	0
Grangemouth Corporation	3	3	0
Grattidge, H. H.		15	0
Greenock Corporation	7	7	0
Hamilton Corporation	4	4	0
Hawick Corporation	3	3	0
Heriot-Watt College	1	1	0
Howden, James & Co., Ltd.	12	12	0
*Hughes, H. S.	1	1	0
Inverness County Council	5	5	0
Inverness Corporation	4	4	0
Irvine Corporation	3	3	0
Johnstone Corporation	3	3	0
Jones, Samuel & Co., Ltd.	5	5	0
Kilmarnock Corporation	4	4	0
Kilsyth Corporation	3	3	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	3	3	0
Lanark County Council	21	0	0
Loanhead Corporation	3	3	0
Motherwell & Wishaw Corporation	5	5	0
Musselburgh Corporation	3	3	0
Orr, J. M. R.	1	1	0
Paisley Corporation	7	7	0
Paton, T. (1953)		15	0
(1954)		15	0
Perth Corporation	4	4	0
Port Glasgow Corporation	2	2	0
Renfrew Corporation	3	3	0
*Ritchie, A. W.	1	0	0
Ritchie, G. B.		15	0
Roberton, Bailie V.	1	1	0
Rothesay Corporation	3	3	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Association	2	2	0
Scottish Gas Board (1953)	73	10	0
(1954)	73	10	0
Scott Park, Dr. and Mrs. S. D.	1	1	0
Smith, Mrs. Brownhill	1	1	0
South East Scotland Electricity Board	12	12	0
South West Scotland Electricity Board	12	12	0
Stirling County Council	15	15	0
Stirling Corporation	4	4	0
Taylor, W.	1	0	0
Waldie, J. & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		15	0

Northern Ireland Division

	£	s.	d.
Belfast Corporation	5	5	0
Lynas, K. H.	1	0	0
Ormeau Bakery Ltd.	7	7	0

North-West Division

	£	s.	d.
Abram U.D.C. (1953)	3	3	0
(1954)	3	3	0
Accrington Corporation	4	4	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.	1	0	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Anonymous	1	1	0
Ashton, Bros. & Co., Ltd.	2	2	0
Ashton-under-Lyne Corporation	5	5	0
Atherton U.D.C.	3	3	0
Audenshaw U.D.C.	3	3	0
Bacup Corporation	3	3	0
Barrow-in-Furness Corporation	5	5	0
Baxendale & Co., Ltd.	2	2	0
*Beard, E.	2	2	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	12	12	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	12	12	0
Blackpool Corporation	12	12	0
Bloom, J.		15	0
Bock, Dr. J. H.		15	0
Bolton Corporation	12	12	0
Bootle Corporation	6	6	0
Bowyer, Mrs. N.		15	0
Brierfield U.D.C.	3	3	0
British Electricity Authority—			
Merseyside and N. Wales Division	12	12	0
North Western Division	12	12	0
British Insulated Callender's Cables Ltd.	7	7	0
Bryan, G. T.	1	5	0
Burnley Corporation	7	7	0
Burnley R.D.C.	4	4	0
Bury Corporation	5	5	0
Buxton Corporation	3	3	0
Chadderton U.D.C.	4	4	0
Cheadle & Gatley U.D.C.	4	4	0
Chennell, J.		10	6
Church U.D.C.	3	3	0
Clitheroe Corporation	3	3	0
Colne Corporation	3	3	0
Cooper, Miss I.	1	1	0
Coulthard, Dr. A.		5	0
Coulthard, Miss D.		10	0
Craven, W. D. C.	2	2	0
Crewe Corporation	5	5	0
Crosby Corporation	5	5	0
Cumberland County Council	12	12	0
Darwen Corporation	4	4	0
Davies, D. E.		15	0
Davies, L.	1	5	6
Denton U.D.C. (1953)	4	4	0
(1954)	4	4	0
Droylsden U.D.C.	4	4	0
*Duguid, S. N.	3	3	0
Duguid, Mrs. S. N. (1953)	1	1	0
(1954)	1	1	0
Eccles Corporation	4	4	0
Ellesmere Port U.D.C.	4	4	0
Failsworth U.D.C.	3	3	0
Farnworth Corporation	4	4	0
Fildes, Mrs. A.		15	0

*Forrester, R. E.	1	0	0
Franklin, N. J.		15	0
Fulwood U.D.C.	3	3	0
Gandy, Mrs. L. M.		15	0
*Gavaghan, Mrs. L. A.	1	1	0
Glossop Corporation	3	3	0
Golborne U.D.C.	3	3	0
Great Harwood U.D.C.	3	3	0
Griffel, Dr. W.		10	6
Griffiths, The Misses	2	0	0
Hale, U.D.C.	2	2	0
Hall, E. N.		15	0
Hall & Pickles Ltd.	12	12	0
Hancock, A.	1	1	0
Hartley, G. E.		10	6
Harvey, N.		15	0
Haydock U.D.C.	3	3	0
*Hayhurst, Mr. H. and Mrs. L.	1	1	0
Hazel Grove & Bramall U.D.C.	3	3	0
*Herbert, J. L.		10	6
Hetherington, H.		15	0
Heywood Corporation	4	4	0
Horwich U.D.C.	3	3	0
Howarth, R. W.	1	1	0
Hoylake U.D.C.	4	4	0
*Hughes, W. R.	1	1	0
Huyton-with-Roby U.D.C.	5	5	0
Hyde Corporation	4	4	0
Hyde, F. (1953)	1	1	0
(1954)	1	1	0
Irlam U.D.C.	3	3	0
Jackson, C. L.	1	1	0
Jewsbury, S.		15	0
Johnston, S.		5	0
Jonas, P. J.		10	6
Kay, Miss D.		7	6
Kearsley U.D.C.	3	3	0
*Keddie, Dr. J. T. Chalmers		15	0
*Kennedy, W. B.		10	6
*Kitchener, The Rt. The Earl	1	0	0
Lancashire County Council	52	10	0
Lancashire & District Coke Distributors' Association	7	7	0
Lancaster Corporation	5	5	0
Lane, Mrs. W.		15	0
Langford, A. S.		10	6
*Lee, Sir Kenneth	1	0	0
Lees, Miss M.	1	1	0
Leigh Corporation	4	4	0
Leyland U.D.C.	3	3	0
Littleborough U.D.C.	3	3	0
Liverpool Corporation	31	10	0
Longdendale U.D.C.	3	3	0
Macclesfield Corporation	4	4	0
Manchester Commercial Buildings Co., Ltd.	3	3	0
Manchester Corporation	42	0	0
Manchester & District Smoke Abatement Committee	25	4	0
Marple U.D.C.	3	3	0
Mather, L. E.	2	2	0
*Mather, W. L.	1	0	0
Mather & Platt Ltd.	50	0	0
McKellen, N.	1	1	0
*Macnair, A. S.	1	0	0
MacWilliam, Dr. H. H.		15	0
Melland, Mrs. W.	1	1	0
Merseyside & North Wales Electricity Board	12	12	0
Metropolitan-Vickers Electrical Co., Ltd.	8	8	0
Middleton Corporation	4	4	0
Middlewich U.D.C.	3	3	0
Mitchell, L. A.	1	1	0
Nelson Corporation	4	4	0
Newton-le-Willows U.D.C.	3	3	0
Northern Gas Board—			
Carlisle	1	11	6
Penrith		10	6
Workington	1	11	6
North Western Electricity Board	12	12	0
North Western Gas Board	105	0	0
Northwich U.D.C. (1953)	1	1	0
(1954)	3	3	0
Oldham Corporation	12	12	0
Oliver, P. M.	2	2	0
Ormskirk U.D.C.	3	3	0
Padden, T. J.		15	0
Padiham U.D.C.	3	3	0
Parker, H.	1	0	0
Pike, Miss I. M.	1	0	0
*Polding, W. W.		10	6
Pontefract Bros.	2	2	0
Preston Corporation	12	12	0
Preston R.D.C.	4	4	0
Radcliffe Corporation (1953)	4	4	0
(1954)	4	4	0
Rawtenstall Corporation	4	4	0
Redfern, P.		5	0
Refuge Assurance Co.	12	12	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	6	6	0
Richardson, H. A.		15	0
Rishton U.D.C.	2	2	0
Robey, J. C.		15	0
*Robinson, Alderman J.	1	0	0
Rochdale Corporation	7	7	0
Royton U.D.C.	3	3	0
St. Helens Corporation	13	13	0
Sale Corporation	4	4	0
Salford Corporation	12	12	0
Sandbach U.D.C.	3	3	0
Sandbach, Miss E. A. (1953)		10	0
(1954)		10	0
*Saunders, P. H.	1	0	0
Manchester Technology Old Students' Association	5	5	0
*Scott, Mrs. A. O.	1	0	0
Shamash, E.	4	0	0
Shaw, Mrs. M.		15	0
*Shaw, R. D.		15	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	100	0	0
Simpson & Godlee Ltd.	7	7	0
*Smith, H.	2	2	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation	3	3	0
Stockport Corporation	12	12	0
Stretford Corporation	5	5	0
*Swale, W. E.		10	6
Swinton & Pendlebury Corporation	4	4	0
Taylor, C. P.		15	0
*Taylor, H. F.		12	6
Taylor, Miss M. R.	1	0	0
Thornton Cleveleys U.D.C.	2	2	0
*Thorpe, J. A.		10	6
Unsworth, J.	1	1	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation	12	12	0
Walton-le-Dale U.D.C.	3	3	0
Warrington Corporation	7	7	0
Warrington R.D.C.	2	2	0
*Wells, Dr. Nesta H.		5	0
Westminster Dredging Co. Ltd.	2	2	0
*West's Gas Improvement Co. Ltd.	28	11	5
Whaley Bridge U.D.C.	3	3	0
Whiston R.D.C.	1	1	0
Widnes Corporation	4	4	0
Wigan Corporation	8	8	0
Williamson, J. G.		15	0
Winder, F.		15	0
*Wood, F. J.		15	0
Woodward, W.	1	1	0
Workington Corporation	4	4	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	5	5	0

North-East Division

*Angus, Col. E. G.	3	3	0
Ashington U.D.C.	4	14	6
Atkinson, E.		15	0

Atkinson, H.			15 0
Bedlingtonshire U.D.C.		4	4 0
Billingham U.D.C.		3	3 0
Blaydon U.D.C.		4	4 0
Brandon and Byshottles U.D.C.		3	3 0
British Electricity Authority—North Eastern Division		12	12 0
Castle Ward R.D.C.		3	3 0
Cellan, Jones, G.		2	2 0
Chester-le-Street U.D.C.		3	3 0
Consett U.D.C.		4	4 0
Crook and Willington U.D.C.		4	4 0
Darlington Corporation		7	7 0
Durham R.D.C.		4	4 0
Eston U.D.C.		4	4 0
Felling U.D.C.		4	4 0
Fletcher, D. R.			15 0
Gandy, Mr. and Mrs. H.		1	10 0
Gateshead Corporation		12	12 0
Gosforth U.D.C.		3	3 0
Green, Miss E.			15 0
Hartlepool Corporation		3	3 0
Hebburn U.D.C.		3	3 0
Hetton U.D.C.		3	3 0
Houghton-le-Spring U.D.C.		8	8 0
Imperial Chemical Industries Ltd. (Billingham Division)		12	12 0
*Isaac, P. C. G.		1	1 0
Jarrow Corporation		4	4 0
Lanchester R.D.C.		3	3 0
Longbenton U.D.C.		4	4 0
Middlesbrough Corporation		12	12 0
Newburn U.D.C.		3	3 0
Newcastle upon Tyne Corporation		21	0 0
Nicol, W. T.			10 6
North Eastern Electricity Board		12	12 0
Northern Gas Board—Blyth		1	1 0
,, Darlington		3	3 0
,, Hexham			10 6
,, Middlesbrough		4	4 0
,, Newcastle/Tyne		21	0 0
,, Stockton/Tees		4	4 0
,, Sunderland		4	4 0
Northumberland County Council		18	18 0
*Palmer, F. E.		2	2 0
Power Gas Corporation		10	10 0
Prudhoe U.D.C.		3	3 0
Redcar Corporation		4	4 0
Ryton U.D.C.		3	3 0
Saltburn & Marske-by-the-Sea U.D.C.		3	3 0
Seaham U.D.C.		6	6 0
Sedgefield R.D.C.		4	4 0
Skelton and Brotton U.D.C.		3	3 0
Stanley U.D.C.		5	5 0
Stockton-on-Tees Corporation		5	5 0
Sunderland Corporation		12	12 0
Thornaby-on-Tees Corporation		3	3 0
University of Durham—King's College		2	2 0
Wallsend Corporation		5	5 0
Washington U.D.C.		3	3 0
West Hartlepool Corporation		6	6 0
Whickham U.D.C.		3	3 0

Yorkshire Division

Adwick-le-Street U.D.C.		3	3 0
Aireborough U.D.C.		4	4 0
Ambler, T. & Sons		1	1 0
Atkinson, C. A. P.			15 0
Bacon, N. P.		1	0 0
Batley Corporation		4	4 0
Beaumont, J. W.			15 0
Bentley-with-Arksey U.D.C.		3	3 0
Bingley U.D.C.		3	3 0
Bradford Corporation		21	0 0
Bradford Civic Society		2	2 0
Bray, G. & Co.		12	12 0
Bridlington Corporation		2	2 0
Brighouse Corporation		4	4 0
British Electricity Authority—Yorkshire Division		12	12 0
*Brown, G. L.		2	2 0
*Carpenter, V. A.			10 6
Castleford U.D.C.		4	4 0
Clayton, Son & Co., Ltd.		2	2 0
Clegg, E.			15 0
Coke Oven Managers' Association		5	5 0
Colne Valley U.D.C.		3	3 0
Conisbrough U.D.C.		3	3 0
Darton U.D.C.		3	3 0
Dearne U.D.C.		3	3 0
Denby Dale U.D.C.		3	3 0
Dewsbury Corporation		5	5 0
Dickinson, Miss W.			15 0
Dodworth U.D.C.	(1953)	3	3 0
	(1954)	3	3 0
Doncaster Civic Trust		2	0 0
Doncaster Corporation		7	7 0
Doncaster R.D.C.		5	5 0
Givens, W.			15 0
Goodfellow J.			15 0
Graucob, F. Ltd.		2	2 0
Green, E. & Son Ltd.		100	0 0
Halifax Corporation		7	7 0
Hall, J. A.	(1953)		15 0
	(1954)		15 0
Harper, Dr. R.		1	1 0
Harrogate Corporation		5	5 0
Hemsworth R.D.C.		5	0 0
Hemsworth U.D.C.		3	3 0
Hepton R.D.C.		3	3 0
Holmes, W. C. & Co., Ltd.		12	12 0
Holdsworth, R. Y.		1	1 0
*Holmes, W. G.		5	0 0
Holmfirth U.D.C.		3	3 0
Horbury U.D.C.		3	3 0
Horsforth U.D.C.		3	3 0
Huddersfield Corporation		12	12 0
Hull Corporation		18	18 0
Hunter, K. D.		1	1 0
Jervis, Dr. J. Johnstone		1	1 0
Keighley Corporation		2	2 0
Leeds Corporation	(1953)	15	15 0
	(1954)	31	10 0
Lister, H. & Sons Ltd.		2	2 0
Lomas, Mrs. B.			15 0
Lowery, P. A.			15 0
*Marshall, G. C.			10 0
Meltham U.D.C.		3	3 0
Mexborough U.D.C.		3	3 0
Mirfield U.D.C.	(1953)	3	3 0
	(1954)	3	3 0
Morley Corporation		4	4 0
Newton, Chambers & Co., Ltd.		25	0 0
North Eastern Gas Board		42	0 0
North Riding of Yorkshire County Council		18	18 0
Ossett Corporation		3	3 0
Otley U.D.C.		3	3 0
Pontefract Corporation		3	3 0
Pudsey Corporation		5	0 0
Queensbury & Shelf U.D.C.		3	3 0
Rawmarsh U.D.C.		3	3 0
Reeder, E. C.		1	10 0
Rosie, Miss J. I.			15 0
Rothwell U.D.C.		3	3 0
Royston U.D.C.		3	3 0
Rushton, J. L.		1	1 0
Scarborough Corporation		2	2 0
Schofield, W. B.		1	1 0
*Severs, J. S.		2	0 0
Sheffield, Rotherham & District Smoke Abatement Committee		31	10 0
Shipley U.D.C.		4	4 0
Spenborough U.D.C.		4	4 0
Stanley U.D.C.		3	3 0
Steam Storage Co., Ltd.		1	1 0
Stocksbridge U.D.C.		3	3 0
Swinton U.D.C.		3	3 0
United Steel Companies Ltd.		50	0 0
Wakefield Corporation		6	6 0

Wakefield R.D.C.	3	3	0
Ward, A.		15	0
Warwick, H.	1	1	0
West Riding of Yorkshire Regional Smoke Abatement Committee	3	3	0
Wombwell U.D.C.	3	3	0
*Wood, F. T.	1	1	0
Worsborough U.D.C.	3	3	0
Wortley R.D.C.	4	4	0
Yorkshire Electricity Board	12	12	0
York Corporation	5	5	0

West Midlands Division

Best, J. K.		15	0
Bilston Corporation	5	5	0
Birmingham Corporation	31	10	0
Brierley Hill U.D.C.	5	5	0
British Electricity Authority—Midlands Division	12	12	0
British Reinforced Concrete Eng. Co. Ltd.	50	0	0
Brownhills U.D.C.	3	3	0
Burton-upon-Trent Corporation	4	4	0
Cannock U.D.C.	4	4	0
Coventry Corporation	18	18	0
Danks, E. & Co. (Oldbury) Ltd.	12	12	0
Darlaston U.D.C.	3	3	0
Dudley Corporation	5	5	0
Gibbons Bros., Ltd.	50	0	0
Gillett, Mr. & Mrs. J. A.	2	2	0
Grimmett, P. H. G.		10	6
Halesowen Corporation	4	4	0
Hall, G. R.		15	0
Harris & Co., Ltd.	1	11	6
Hayes, Mrs. A. L.		15	0
Kidderminster Corporation	4	4	0
King-Farlon, Mrs. R. S.	1	0	0
Leamington Spa Corporation	4	4	0
Longfellow, A.	1	0	0
Manger's Salt Works Ltd.	1	1	0
Meriden R.D.C.	4	4	0
Midlands Electricity Board	12	12	0
Midlands Joint Advisory Council for Smoke Abatement	5	5	0
Moore, J.		15	0
Morrin, Councillor J. M.	2	2	0
Newcastle-under-Lyme Corporation	5	5	0
Nuneaton Corporation	5	5	0
Oldbury Corporation	5	5	0
Pointon, F. T., Junr.	1	4	6
*Pringle, Dr. E.		15	0
*Pringle, Dr. J. E.	1	1	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	4	4	0
Rugeley U.D.C.	3	3	0
Sedgley U.D.C.	3	3	0
*Simpson, T. S.		15	0
Smart, R. C.		10	0
Smethwick Corporation	7	7	0
Stafford Corporation	1	10	0
Stoke-on-Trent Corporation	18	18	0
Stone R.D.C.	3	3	0
Taylor, Mr. and Mrs. C. B.	2	2	0
Thomas, Dr. G. J.	1	0	0
Tipton Corporation	4	4	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	12	12	0
Warwickshire County Council	18	18	0
Wednesbury Corporation	4	4	0
Wellington (Salop) U.D.C.	3	3	0
West Bromwich Corporation	7	7	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	12	12	0
Wright, J.	1	10	0

East Midlands Division

Alfreton U.D.C.	3	3	0
*Barash, Dr. M.	1	1	0
Basford R.D.C.	4	4	0
Beeston and Stapleford U.D.C.	4	4	0
Belper U.D.C.	3	3	0
Blackwell R.D.C.	4	4	0
Bolsover U.D.C.	3	3	0
Boston Corporation	3	3	0
British Electricity Authority—East Midlands Division	12	12	0
*Brown, J. A.	1	1	0
Cambridge Corporation	1	1	0
Charlesworth, Mrs.		5	0
Chesterfield Corporation	5	5	0
Chesterfield R.D.C.	7	7	0
Clowne R.D.C.	3	3	0
Coalite & Chemical Products Ltd.	52	10	0
Coalville U.D.C.	4	4	0
Corby U.D.C.	3	3	0
Dearden, J.		15	0
Derby Corporation	12	12	0
Derbyshire County Council	12	12	0
Earnshaw, G. H.		15	0
Eastern Electricity Board (1953)	12	12	0
(1954)	12	12	0
East Midlands Electricity Board	12	12	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	3	3	0
Feaver, R. J.		15	0
Gainsborough U.D.C.	3	3	0
Great Yarmouth Corporation	5	5	0
Grimsby Corporation (1953)	7	7	0
(1954)	7	7	0
Gurney, J.	2	2	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	4	4	0
Hucknall U.D.C. (1953)	3	3	0
(1954)	3	3	0
Ilkeston Corporation	4	4	0
Ipswich Corporation	12	12	0
Irthlingborough U.D.C.	3	3	0
Kettering Corporation	4	4	0
King's Lynn Corporation	4	4	0
Kirkby-in-Ashfield U.D.C.	3	3	0
Leicester Corporation (1953)	18	18	0
(1954)	18	18	0
Lewis, Mrs. A. B.	1	0	0
Lincoln Corporation	7	7	0
Long Eaton U.D.C.	4	4	0
Loughborough Corporation	4	4	0
Lowestoft Corporation	4	4	0
Low Temperature Coal Distillers Association	7	7	0
Mansfield Corporation	5	5	0
Mansfield Woodhouse U.D.C. (1953)	4	0	0
(1954)	4	0	0
Market Harborough U.D.C.	3	3	0
McDonald, J. D.		15	0
McHugh, F. G.		15	0
Newark Corporation (1953)	3	3	0
(1954)	3	3	0
Nottingham Corporation	35	0	0
Nottinghamshire County Council	10	10	0
Orr, J. H.		15	0
Peterborough Corporation	5	5	0
Ripley U.D.C.	3	3	0
Roe, J. W.		10	6
Rushden U.D.C.	3	3	0
Scopes, F. V.	1	1	0
Scunthorpe Corporation	5	5	0
Smith, F. V. S.	1	0	0
Southwell R.D.C.	4	4	0
Staveley U.D.C.	3	3	0
Stewarts & Lloyds Ltd.	50	0	0
Sutton-in-Ashfield U.D.C.	4	4	0
Swadlincote U.D.C.	3	3	0
Turner, T. Henry	1	0	0
West Bridgford U.D.C. (1953)	3	3	0
(1954)	3	3	0
Wigston U.D.C.	3	3	0
Woodcock, F. Huntly	1	5	0
Worksop Corporation	4	4	0
Worksop R.D.C.	3	3	0

South-West Division

Abercarn U.D.C.	3	3	0
Aberdare U.D.C.	4	4	0
Abertillery U.D.C.	4	4	0
Barry Corporation	4	4	0
Bath Corporation	7	7	0
Bedwas and Machen U.D.C.	3	3	0
Bedwellty U.D.C.	4	4	0
Blampied, F. C.		15	0
*Bradshaw, Miss G.		5	0
Bristol Corporation	18	18	0
Bristol and District Regional Smoke Abatement Council	4	4	0
British Electricity Authority—			
South Wales Division	12	12	0
South Western Division	12	12	0
Buzzacott, J. O.	2	2	0
*Campbell, Dr. A. F.	1	1	0
Cardiff Corporation	12	12	0
Cardiff R.D.C.	4	4	0
Cawley, The Lady	1	0	0
Cheltenham Corporation	5	5	0
Clarke, J. A.	1	5	0
Coulthurst, Mrs. A.		15	0
Crook, S. C.	1	1	0
Cwmbran U.D.C.	3	3	0
Ebbw Vale U.D.C. (1953)	5	5	0
(1954)	5	5	0
Fry, Miss A.		15	0
Gloucester Corporation	5	5	0
Ilfracombe U.D.C.	3	3	0
Gellygaer U.D.C.	4	4	0
Kingswood U.D.C.	3	3	0
Llanelly Corporation	4	4	0
Llanelly R.D.C.	4	4	0
Llantrisant and Llantwit Fadre R.D.C.	4	4	0
Mountain Ash U.D.C. (1953)	4	4	0
(1954)	4	4	0
Mynyddislwyn U.D.C.	3	3	0
Neath Corporation	4	4	0
Newport Corporation	12	12	0
Pontardawe R.D.C. (1953)	4	4	0
(1954)	4	4	0
Pontypool U.D.C.	4	4	0
Pontypridd U.D.C.	4	4	0
Poole Corporation	2	2	0
Portishead U.D.C.	3	3	0
Port Talbot Corporation	4	4	0
Seale, Mrs. I. L.		15	0
Shaftesbury, Lady (1953)		10	6
(1954)		15	0
Shawyer, A. F.	1	0	0
Silburn, Mrs. E.	1	1	0
Sodbury R.D.C.	4	4	0
South Wales Electricity Board	12	12	0
South Western Electricity Board	12	12	0
South Western Gas Board	36	15	0
Swansea Corporation	3	3	0
Swindon Corporation	5	5	0
Thomas, E.		15	0
Thornbury R.D.C.	4	4	0
Tosic, J.		10	0
Tredegar U.D.C. (1953)	3	3	0
(1954)	3	3	0
Wales Gas Board	21	0	0
Wales and Monmouthshire Industrial Estates Ltd.	7	7	0
Warmley R.D.C.	3	3	0
Weston-super-Mare Corporation	2	2	0
Women's Gas Federation		10	0

South-East Division

Acton Corporation	6	6	0
Acworth, A. W.	1	0	0
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0
Andover Corporation	2	2	0
Ascot Water Heaters Ltd.	12	12	0
Associated Coal and Wharf Companies Ltd.	7	7	0
Atkinson, Mrs. M.	1	0	0
Aylesbury Corporation	3	3	0
Banbury Corporation	3	3	0
Barking Corporation	10	10	0
Barnes Corporation	4	4	0
Battersea Corporation	12	12	0
Beard, J. R.	1	1	0
Bedfordshire County Council	21	0	0
Bennett, M. J.	1	10	0
Bermondsey Corporation	5	5	0
Bexley Corporation	7	7	0
Billericay U.D.C.	4	4	0
*Bond, Miss E. F.		15	0
Boult, Miss O.	2	2	0
Bournemouth Corporation	2	2	0
Boyd, Miss D.		10	6
Brentford and Chiswick Corporation	5	5	0
Brighton Corporation	12	12	0
British Electrical Development Assn.	125	0	0
British Electricity Authority—	147	4	0
,, Eastern Division	12	12	0
,, London Division	12	12	0
,, South Eastern Division	12	12	0
,, Southern Division	12	12	0
British Iron and Steel Federation	105	0	0
British Medical Association	12	12	0
Bromley Corporation	5	5	0
Browne, Dr. D. Warren	1	1	0
Bryant, G.	1	0	0
Buist, Commander C.	10	10	0
Burke, Dr. S. A.	1	11	6
Cable Makers Association	12	12	0
Caller, Dr. S.		10	6
Camberwell Corporation	12	12	0
Card, H. T.		15	0
Carshalton U.D.C.	1	1	0
*Chantler, P.	3	3	0
Charrington, Gardner, Lockett & Co., Ltd.	7	7	0
Chatham Corporation	4	4	0
Chatfield, A. J.		15	0
Chelsea Corporation (1953)	5	5	0
(1954)	5	5	0
Cheshunt U.D.C.	3	3	0
Chigwell U.D.C.	5	5	0
Chislehurst and Sidcup U.D.C.	7	7	0
Chitson, Miss M.		15	0
*Chivers, D. P.		10	0
*Clarke, Dr. R. T. V.	1	10	0
*Clinch, H. G.	1	1	0
Clinical Research Association Ltd.	2	2	0
Coal Utilization Council	15	15	0
Crayford U.D.C.	4	4	0
Croydon Corporation	4	4	0
Dagenham Corporation	3	3	0
Dartford Corporation	4	4	0
Dartford R.D.C.	4	4	0
Deptford Corporation	7	7	0
Dover Corporation	4	4	0
Dunstable Corporation	3	3	0
Ealing Corporation	2	2	0
*East, R. G.	1	0	0
Eastern Gas Board	42	0	0
East Ham Corporation	12	12	0
Eastleigh Corporation	4	4	0
*Eaton, Dr. F. J.	2	0	0
Edmonton Corporation	12	12	0
Edwards, Dr. C.		15	0
*Edwards, The Rt. Hon. John	1	0	0
Electrical Association for Women	12	12	0
Elstree R.D.C.	3	3	0
*Elsworthy, J. G.	1	11	6
Epping R.D.C.	3	3	0
Erith Corporation	4	4	0
Essex, K. B.		15	0
Evans, D. H. & Co., Ltd.	7	7	0
Farnborough U.D.C. (1953)	2	2	0
(1954)	2	2	0
Feltham U.D.C.	4	4	0

Finchley Corporation		5	5	0
Finsbury Corporation		5	5	0
*Foss, Mrs. A.			10	6
Fox, J.		1	1	0
Fox, Dr. R. H.			15	0
Franklin, C. Ltd.		2	2	0
Friern Barnet U.D.C.		4	4	0
Fry, Miss A. R.		1	0	0
Fry, J.		5	5	0
Fry, Miss M.	(1953)	1	0	0
	(1954)	1	16	4
Fulham Corporation		15	15	0
*Gamlen, R. E.		1	11	6
*Gandy, Miss R. L.		1	1	0
Gas Council		250	0	0
General Electric Co., Ltd.		12	12	0
*Gillison, Dr. J. A.		1	1	0
Glover and Main Ltd.		50	0	0
Goodchild, C. R.			15	0
Goodeve, Sir C. F.		2	2	0
Gosport Corporation	(1953)	1	1	0
	(1954)	1	1	0
Grace, Mrs. E.			15	0
Graff, Gerda			15	0
Gravesend Corporation		4	4	0
Greenwich Corporation		3	3	0
Greenwood, T. A. S.			15	0
Guildford Corporation		4	4	0
Gummer, R. H.		1	1	0
Hackney Corporation		12	12	0
Hales, J. S.		2	2	0
*Hall, C. A.		1	5	0
Halstead, V.		1	1	0
Hammersmith Corporation	(1953)	12	12	0
	(1954)	12	12	0
*Hampson, G. B.			10	6
Hampstead Corporation		7	7	0
Harrold Leather Mfg. Co., Ltd.		1	1	0
Harrow Corporation	(1953)	12	12	0
	(1954)	12	12	0
Havant and Waterloo U.D.C.		4	4	0
Hayes and Harlington U.D.C.	(1953)	5	5	0
	(1954)	5	5	0
Heston and Isleworth Corporation		7	7	0
Hitchin U.D.C.		3	3	0
Hodgkinson, J. (Salford) Ltd.		7	7	0
Holborn Corporation		3	3	0
Holmes, J. P.		1	1	0
Hornchurch U.D.C.		12	12	0
Horsham U.D.C.		3	3	0
Hove Corporation		5	5	0
Hurseal Ltd.		7	7	0
*Hutton, Dr. K. B.			10	6
Hyland, A.		1	0	0
Ideal Boilers & Radiators Ltd.		7	7	0
Ilford Corporation		12	12	0
Institute of Fuel		15	15	0
Institution of Electrical Engineers		12	12	0
International Combustion Ltd.		250	0	0
Jackson, Dr. M. N.		1	1	0
James, B. W.			15	0
Jones, Griffith			15	0
Judd, Budd Ltd.		7	7	0
Kensington Corporation		3	3	0
*Kettlewell, H. M.		1	1	0
Kingston-on-Thames Corporation		4	4	0
Lambeth Corporation	(1953)	1	1	0
	(1954)	12	12	0
Lee, S. A.		1	0	0
*Lessing, Dr. R.		1	1	0
Leveson Gower, Miss V.			10	0
Leyton Corporation		3	3	0
Lister, B. S.		2	0	0
Littlehampton U.D.C.		1	11	6
London (City), Corporation of		26	5	0
London Electricity Board	(1953)	12	12	0
	(1954)	12	12	0
London Trades Council		2	2	0
Luton Corporation		2	2	0
MacDermott, N.			15	0
*McGhie, A. T. S.			15	0
*McLachlan, T.			10	6
Malden & Coombe Corporation		3	3	0
Manning, C.		1	1	0
Margolis, A. E.			15	0
Markham, Sir Frank		2	2	0
Mathias, Mrs. F. V. L.			15	0
Melland, B.		1	10	0
Melvin, C. J. & Co.			10	6
Merton & Morden U.D.C.		5	5	0
Mitcham Corporation		2	2	0
Morgan, Miss G.		2	2	0
*Munro, Mrs. M. A.		1	1	0
National Coal Board	(1953)	157	10	0
	(1954)	500	0	0
New Forest R.D.C.		4	4	0
Nonhebel, G.		1	1	0
Northfleet U.D.C.		3	3	0
North Thames Gas Board		105	0	0
Ongar R.D.C.		3	3	0
Orpington U.D.C.		5	5	0
Oxford Corporation		10	10	0
Oxford Preservation Trust		1	1	0
Paddington Corporation		5	5	0
Parkinson, A. C.			15	0
Parry, M.			15	0
Penge U.D.C.		4	4	0
Pollard, R. S. W.			15	0
Pollitzer, E.		3	3	0
Portsmouth Corporation		5	5	0
Radiation Ltd.		262	12	0
Railway Executive		150	0	0
Radiovisor Parent Ltd.		7	7	0
Rathbone, P. R.			10	6
Rayner, E. T.		2	2	0
Reading Corporation	(1953)	2	2	0
	(1954)	2	2	0
Reed, H. H.		1	1	0
Reigate Corporation	(1953)	1	1	0
	(1954)	1	1	0
Rheostatic Co., Ltd.		2	2	0
Rhondda, Lady			15	0
Richards, Dr. H.			10	6
*Roberts, J. M.			15	0
*Robinson, Mrs. E.		2	2	0
Rochester Corporation		4	4	0
Romford Corporation		7	7	0
*Roper, Captain R.			10	6
St. Albans Corporation	(1953)	4	4	0
	(1954)	4	4	0
St. Marylebone Corporation		7	7	0
St. Pancras Corporation		5	5	0
Salmon, S. A.			15	0
Samuel, Viscount and Lady		1	1	0
Sanitary Inspectors' Association		12	12	0
Schofield, M. G.		1	0	0
*Shanks, E. C.			15	0
Shaw Scott, G.		1	0	0
Shoreditch Corporation	(1953)	4	4	0
	(1954)	4	4	0
Shoreham-by-Sea U.D.C.		3	3	0
Simon, Professor Sir Francis		1	0	0
Sittingbourne and Milton U.D.C.		3	3	0
Slough Corporation		5	5	0
*Smith, D. V. H.		2	2	0
Smith, Sir Ernest		2	2	0
Smith, H. J.		2	2	0
Smith & Wellstood Ltd.		1	1	0
Solid Smokeless Fuels Federation		52	10	0
Southall Corporation		5	5	0
Southampton Corporation		1	1	0
Southampton Women's Luncheon Club		2	2	0
South Eastern Electricity Board		12	12	0
South Eastern Gas Board		105	0	0
Southend-on-Sea Corporation		2	2	0
Southern Electricity Board		12	12	0
Southern Gas Board		36	15	0
Southgate Corporation		2	2	0
Southwark Corporation		7	7	0
Southwell, W. E.			10	6
Southwick U.D.C.	(1953)	3	3	0
	(1954)	3	3	0
Staines U.D.C.		4	4	0
Stansfield, A. F.			15	0
Stepney Corporation		7	7	0
Stoddard, Dr. A.		1	0	0
Stoke Newington Corporation		4	4	0
Sturtevant Engg. Co., Ltd.		2	2	0

Sugg, Wm. & Co., Ltd.		2	2	0
Sutton & Cheam Corporation		7	7	0
Swift, S.		1	1	0
*Taylor, M. Lindsay		1	1	0
Thurrock U.D.C.	(1953)	7	7	0
	(1954)	7	7	0
Tiranti, A.			5	0
Tottenham Corporation		12	12	0
Trianco Limited		7	7	0
Twickenham Corporation		12	12	0
Turner, Dr. W. C.		1	0	0
Uxbridge U.D.C.		5	5	0
Des Voeux, Mrs. M. A.		5	5	0
Waddell, A.			15	0
Wadham, Miss D.		1	0	0
Walthamstow Corporation		12	12	0
Wanstead & Woodford Corporation		5	5	0
Ward, Dr. F. A. B.		2	0	0
Watford Corporation		5	5	0
Watford R.D.C.		4	4	0
*Watkins, D. V.		1	0	0
Wembley Corporation		12	12	0
West Ham Corporation		1	1	0
Westminster City Council		21	0	0
White, Dr. H. D. J.			10	6
Wicksteed, J. H.			10	0
Wilkinson, J. R.			15	0
Willesden Corporation		12	12	0
Wimbledon Corporation		5	5	0
Windsor Corporation		2	2	0
Windsor R.D.C.		3	3	0
Winkworth, Mrs. D. M.			5	0
Women's Advisory Council on Solid Fuel		7	7	0
Women's Gas Federation		12	12	0
Woodall-Duckham Construction Co., Ltd.	(1953)	250	0	0
	(1954)	250	0	0
Woolwich Corporation		12	12	0
Yiewsley and West Drayton U.D.C.		3	3	0

Overseas Subscriptions

Bonati, F. (Italy)		15	0
Elex S.A. (Switzerland)	3	0	0
Hewson, Dr. E. Wendell (U.S.A.)	3	0	0
Jaffray, F. A. (S. Africa)	2	0	0
Jones, Mrs. M. A. (South Africa)	1	1	0
Meddows, J. C. (New South Wales)	2	2	0
Mills, D. V. (Sydney, Australia)		15	0
Pearson, N. (Canada)		15	0
Plamondon, S. R. (Canada)	1	0	7
Reif, A. E. (U.S.A.)	1	1	0
Scott, Howard J. (U.S.A.)	1	1	0
Vereeniging Town Council (S. Africa)	1	1	0
Vivian, J. H. & Co., Ltd. (S. Africa)	2	2	0
Wurts, T. C. (U.S.A.)	1	10	0
Subscriptions and donations under 5s.		10	0
	£8,116	7	4

AFFILIATED LOCAL AUTHORITIES

As at 31*st January*, 1955

(Associates in *Italics*)

Scottish Division

Aberdeen, Airdrie, Ardrossan, *Ayr C.C.*, *Ayr*, Barrhead, Clackmannan C.C., Clydebank, Coatbridge, Dumbarton, Dunbarton C.C., Dundee, Dunfermline, Edinburgh, Falkirk, Glasgow, Grangemouth, Greenock, Hamilton, Hawick, Inverness C.C., Inverness, Irvine, Johnstone, Kilmarnock, Kilsyth, Kirkcaldy, Kirkintilloch, Lanark C.C., Loanhead, Motherwell and Wishaw, Musselburgh, Paisley, Perth, *Port Glasgow*, Renfrew, Rothesay, Rutherglen, Stirling C.C., Stirling, *West Lothian C.C.*

Northern Ireland Division

Belfast.

North West Division

Abram, Accrington, Ashton-under-Lyne, Atherton, Audenshaw, Bacup, Barrow-in-Furness, *Birkenhead*, Blackburn, Blackpool, Bolton, Bootle, Bredbury and Romiley, Brierfield, Burnley, Burnley R.D.C., Bury, Buxton, Chadderton, Cheadle and Gatley, Cheshire C.C., Church, Clitheroe, Colne, Crewe, Crompton, Crosby, Cumberland C.C., Darwen, Denton, Droylsden, Eccles, Ellesmere Port, Failsworth, Farnworth, Fulwood, Glossop, Golborne, Great Harwood, Hale, Haydock, Hazel Grove and Bramhall, Heywood, Horwich, Hoylake, Huyton-with-Roby, Hyde, Irlam, Kearsley, Lancashire C.C., Lancaster, Leigh, Leyland, Littleborough, Liverpool, Longdendale, Macclesfield, Manchester, Marple, Middleton, Middlewich, Nelson, Newton-le-Willows, Northwich, Oldham, Ormskirk, Padiham, Preston, Preston R.D.C., Radcliffe, Rawtenstall, Rhyl, *Rishton*, Rochdale, Royton, St. Helens, Sale, Salford, Sandbach, *Southport*, Stalybridge, Stockport, Stretford, Swinton and Pendlebury, *Thornton Cleveleys*, Urmston, Wallasey, Walton-le-Dale, Warrington, *Warrington R.D.C.*, Whaley Bridge, *Whiston*, Widnes, Wigan, Workington, Wrexham, Wrexham R.D.C.

North East Division

Ashington, Bedlingtonshire, Billingham, Blaydon, Brandon and Byshottles, Castle Ward, Chester-le-Street R.D.C., Chester-le-Street U.D.C., Consett, Crook and Willington, Darlington, Durham, Eston, Felling, Gateshead, Gosforth, Hartlepool, Hebburn, Hetton, Houghton-le-Spring, Jarrow, Lanchester, Longbenton, Middlesbrough, Newburn, Newcastle-upon-Tyne, Northumberland C.C., Prudhoe,

Redcar, Ryton, Saltburn and Marske-by-the-Sea, Seaham, Sedgefield, Skelton and Brotton, South Shields, Stanley, Stockton-on-Tees, Sunderland, Thornaby-on-Tees, Wallsend, Washington, West Hartlepool, Whickham.

Yorkshire Division

Adwick-le-Street, Aireborough, Batley, Bentley-with-Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisbrough, Darton, Dearne, Denby Dale, Dewsbury, Dodworth, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth R.D.C., Hemsworth U.D.C., Hepton, Holmfirth, Horbury, Horsforth, Huddersfield, Hull, *Keighley*, Leeds, Meltham, Mexbrough, Mirfield, Morley, North Riding C.C., Ossett, Otley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rothwell, Royston, *Scarborough*, Sheffield, Rotherham and District Smoke Abatement Committee, Shipley, Spenborough, Stanley, Stocksbridge, Swinton, Wakefield, Wakefield R.D.C., Wombwell, Worsborough, Wortley, *York*.

West Midlands Division

Bilston, Birmingham, Brierley Hill, Brownhills, Burton-on-Trent, Cannock, Coventry, Darlaston, Dudley, Halesowen, Kidderminster, Leamington Spa, Meriden, Newcastle-under-Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby, Rugeley, Sedgley, Smethwick, *Stafford*, Staffordshire C.C. (Corporate), Stoke-on-Trent, Stone, Tipton, Walsall, Warwickshire C.C. Wednesbury, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Alfreton, Basford, Beeston and Stapleford, Belper, Blackwell, Bolsover, Boston, *Cambridge*, Chesterfield, Chesterfield R.D.C., Clay Cross, Clowne, Coalville, Corby, Derby, Derbyshire C.C. (Co. Planning Committee—Corporate), *Dronfield*, Eastwood, Gainsborough, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall, Ilkeston, Ipswich, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Nottingham, *Nottinghamshire C.C.*, Peterborough, Ripley, Rushden, Scunthorpe, Southwell, Staveley, Sutton-in-Ashfield, Swadlincote, West Bridgeford, Wigston, Worksop, Worksop R.D.C.

South West Division

Bath, Bristol, Cheltenham, Gloucester, Ilfracombe, Kingswood, *Poole*, Portishead Sodbury, Swindon, Thornbury, Warmley, *Weston-super-Mare*.

South East Division

Acton, Andover, Aylesbury, Banbury, Barking, Barnes, Battersea, Bedfordshire C.C., Bermondsey, Bexley, Billericay, *Bournemouth*, Brentford and Chiswick, Brighton, Bromley, Camberwell, *Carshalton*, Chatham, Chelsea, Cheshunt, Chigwell, Chislehurst and Sidcup, Clacton, Crayford, *Croydon*, *Dagenham*, Dartford, Dartford R.D.C., Deptford, Dover, Dunstable, Ealing, East Ham, Eastleigh, Edmonton, Elstree, Epping, Erith, *Farnborough*, Feltham, Finchley, Finsbury, Friern Barnet, Fulham, *Gosport*, Gravesend, *Greenwich*, Guildford, Hackney, Hammersmith, Hampstead, Harrow, Havant and Waterloo, Hayes and Harlington, *Heston and Isleworth*, Hitchin, Holborn, Hornchurch, Horsham, Hove, Ilford, *Kensington*, Kingston-on-Thames, Lambeth, *Lewisham*, *Leyton*, *Littlehampton*, London, City of, London C.C., *Luton*, Malden and Coombe, Merton and Morden, *Mitcham*, New Forest, Northfleet, Ongar, Orpington, Oxford, *Paddington*, Penge, *Portsmouth*, *Reading*, *Reigate*, Rochester, Romford, St. Albans, St. Marylebone, *St. Pancras*, Shoreditch, Shoreham-by-Sea, Sittingbourne and Milton, Slough, Southall, *Southampton*, *Southend-on-Sea*, *Southgate*, Southwark, Southwick, Stepney, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Twickenham, Uxbridge, Walthamstow, Wanstead and Woodford, Watford, Watford R.D.C., Wembley, *West Ham*, Westminster, Willesden, Wimbledon, *Windsor*, Windsor R.D.C., *Wood Green*, Woolwich, Yiewsley and West Drayton.

South Wales and Monmouthshire Division

Abercarn, Aberdare, Abertillery, Barry, Bedwas and Machen, Bedwellty, Bridgend, Caerphilly, Cardiff, Cardiff R.D.C., Cwmbran, Ebbw Vale, Gellygaer, Glamorgan C.C., Llanelly, Llanelly R.D.C., Llantrisant and Llantwit Fadre, Mountain Ash, Mynyddislwyn, Neath, Newport, Penarth, Pontardawe, Pontypool, Pontypridd, Port Talbot, Rhondda, Risca, Swansea, Tredegar.

New Richmond flats use

Radiation SMOKELESS WHOLE-HOUSE WARMING

These new flats in Cardigan Road, Richmond, Surrey, show how the architect has greater flexibility in planning when he specifies Radiation's economical and trouble-free system of Whole-house Warming.

The fully automatic gas-operated heating unit fits unobtrusively into a small insulated recess. Ducted warm air is circulated throughout the flat and thermostatic control enables room temperatures to be regulated accurately to the needs of the day and hour. In summer the system may be used to cool the flat. The system operates at 3 to 4 times the efficiency of a normal open fire.

The same remarkable fuel economy is obtained from Radiation's oil-fired and solid fuel-burning units which operate at an efficiency of about 75%. The solid fuel unit incorporates a smoke-consuming down-draught furnace and a 40 gallon hot water cylinder. The oil-fired unit can be supplied with or without a hot water cylinder.



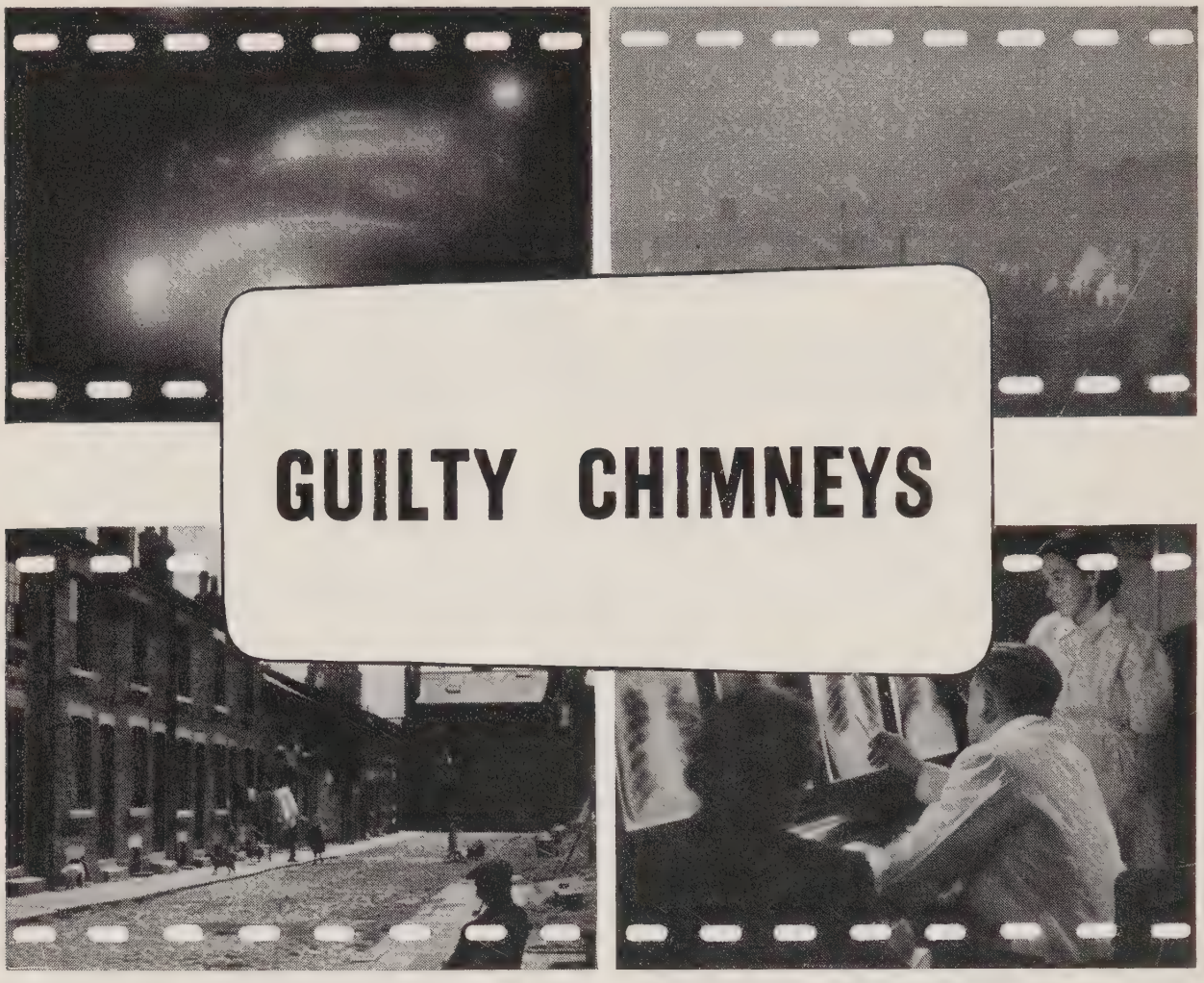
The insulated heating unit occupies very modest floor space in a small recess in the passage



Warm air inlet register and high level return air grille, unobtrusive yet effective. The room thermostat controls temperature

Radiation *Pioneers of smoke reduction*

RADIATION GROUP SALES LIMITED, LANCELOT WORKS, WEMBLEY, MIDDX. *Tel: Wembley 6221*



THIS IS AN IMPORTANT FILM. It shows what "smog" costs us in health and wealth. Everyone concerned in the fight for smoke abatement should see it and make sure that others see it, too.

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Official Position 57

THE GAS COUNCIL

GENERAL INFORMATION AND REFERENCE SECTION

THE LAW RELATING TO SMOKE, ETC.

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (Smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 49). Briefly, the expression " smoke " includes " soot, ash, grit and gritty particles." Provisions (s.101) that require a nuisance to be proved or enable a " best practicable means " defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that " interferes with or obstructs " the efficient working of mines or metallurgical processes.

Action may be taken with regard to smoke under common law procedure and can be used to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase " black smoke " is not used.

The smoke abatement legislation is administered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

RECENT LOCAL LEGISLATION

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of " prior approval " of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this was followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows: those also including smokeless zone clauses being marked " S.Z.":

Manchester Corporation Act, 1946. *S.Z.*
City of London (Various Powers) Act, 1946
Preston Corporation Act, 1947.
Dudley ,, ,, 1947.
Salford ,, ,, 1947. *S.Z.*
Paisley Corporation Order Confirmation Act, 1947.
Coventry Corporation Act, 1948. *S.Z.*
Darwen ,, ,, 1948.
Birmingham ,, ,, 1948.
St. Helens ,, ,, 1948.
Smethwick ,, ,, 1948.
Rochdale ,, ,, 1948. *S.Z.*
Brighton ,, ,, 1948.
Bradford ,, ,, 1949. *S.Z.*
Bolton ,, ,, 1949. *S.Z.*
Urmston ,, ,, 1949. *S.Z.*
Crewe ,, ,, 1949. *S.Z.*
Slough ,, ,, 1949.
W. Bromwich ,, ,, 1949.
Fife C.C. Order Confirmation Act, 1949.
Leyton Corporation Act, 1950.
Wolverhampton Corporation Act, 1950. *S.Z.*
Kirkcaldy Burgh Extension, etc., Order Confirmation Act, 1950.
Edinburgh Corporation Order Confirmation Act, 1950. *S.Z.*
Worcester Corporation Act, 1951.
Sunderland ,, ,, 1951. *S.Z.*
Sutton & Cheam ,, ,, 1951.
Swindon ,, ,, 1951. *S.Z. only.*
Notts. C. Council Act, 1951.
Airdrie Corporation Order Confirmation Act, 1951.
Essex C. Council Act, 1952.
Fareham U.D. Council Act, 1952.
Kingston-upon-Hull Corporation Act, 1952.
Leamington Corporation Act, 1952.
Nottingham ,, ,, 1952.
Tottenham ,, ,, 1952. *S.Z.*
Preston Corporation Order, 1952. *S.Z. only.*
Greenock Corporation Order Confirmation Act, 1952. *S.Z.*
Cheshire County Council Act, 1953.

Berkshire County Council Act, 1953.
West Bridgford U.D. Council Act, 1953. *S.Z. only.*
Oxford Corporation Act, 1953. *S.Z. only.*
Birkenhead Corporation Act, 1954. *S.Z.*
Coventry ,, ,, 1954.
Derbyshire County Council,, 1954.
Newport Corporation ,, 1954.
Walsall ,, ,, 1954. *S.Z.*
Birmingham ,, ,, 1954. *S.Z. only.*
City of London (Various Powers) Act, 1954. *S.Z. only.*

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made in 1928, 1935, 1939 and 1950. The Orders, however, do not apply to Scotland. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to the atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure, penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the inspectorate. (*See also Directory*).

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes three main lines of attack:

(i) a study of the properties and behaviour of atmospheric pollution including the systematic measurement of the amounts of pollution present in the air in various areas throughout the country.
(ii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.
(iii) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December, 1954, regular observations of atmospheric pollution were being made by about 205 local authorities and other co-operating bodies, involving the use of more than 1,500 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration

of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. A process which is undergoing investigation in the laboratory and on a pilot-plant scale at the Fuel Research Station, is the Fulham-Simon-Carves Ammonia Process. An important feature of this process is that the sulphur is recovered as saleable products—namely ammonium sulphate and sulphur.

Local Authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1954 of a total of some 230 co-operating bodies, over 160 had appointed representatives to serve on this Conference.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to ten per cent. of the fuel, has been developed and is now being manufactured commercially. In the same field, research is now being directed towards the development of smoke eliminators for vertical boilers and hand-fired, forced-draught boilers of the Lancashire type.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the Coal Utilization Council's List of Recommended Domestic Solid Fuel Appliances which is circulated for the guidance of local authorities and is available to the general public.

THE NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE

The National Industrial Fuel Efficiency Service, which was formed in May, 1954, to take over and expand the industrial fuel efficiency services formerly provided by the Ministry of Fuel and Power is industry's own Fuel Efficiency Service. It offers practical help to firms large or small to eliminate the waste that occurs in the generation of heat and power and in all stages of their application, whatever type of fuel is used.

N.I.F.E.S. provides throughout the country a full Advisory Service with free initial investigation by its staff of experienced Fuel Engineers. N.I.F.E.S.' Engineers also work in close liaison with the Sanitary Inspectors and are available to give advice on problems relative to excessive smoke and grit emission.

N.I.F.E.S.' educational activities include the sponsoring and furthering of all forms of education for Boilerhouse Operatives and for other personnel engaged in, or directly concerned with the use of fuel, heat and power.

N.I.F.E.S. gives advice on applications for Government Loans to finance fuel-saving schemes. Repayment of loans may be spread over the life of the equipment up to a maximum of twenty years, no interest being charged on loans for the first two years after the equipment has been installed.

N.I.F.E.S. will also make arrangements for regular service contracts to ensure that plant is always operated and maintained at the maximum level of efficiency.

All enquiries should be addressed to the appropriate Area Engineer at the address given in the Directory.

CITY AND GUILDS OF LONDON INSTITUTE EXAMINATIONS

The Institute hold examinations in boiler-house, etc., practice, which by encouraging fuel efficiency and correct operation of plant promote the prevention of smoke. There is an advanced course on Combustion Engineering, a course on Boiler-House Practice, and a new, elementary course for the Boiler Operator's Certificate. In 1954 the number of candidates taking the examinations were: Combustion Engineering, 8; Boiler-House Practice, intermediate, 282, final, 145; Boiler Operator's Certificate, 708. The Boiler Operator's certificate, which may be regarded as the " national certificate " that has been advocated by the N.S.A.S., consists of a written examination of a comparatively simple type and an oral/practical test on a boiler of the kind with which the candidate is familiar. There is also a Fuel Technology examination which meets the examination requirements of the Institute of Fuel for corporate membership. Full particulars of the examinations, and of technical institutes, etc., where courses are held, may be obtained from the Department of Technology, City and Guilds of London Institute, 31 Brechin Place, South Kensington, London, S.W.7.

THE BEAVER REPORT

The Report is so comprehensive and detailed that a useful and balanced summary is impracticable. For reference, therefore, are quoted only the basic policy statements given in the Introduction, the recommendations, and the main conclusions of the appendix on the economic cost of air pollution.

Para. 6: In presenting this Report we wish to state our emphatic belief that air pollution on the scale with which we are familiar in this country today is a social and economic evil which should no longer be tolerated, and that it needs to be combated with the same conviction and energy as were applied one hundred years ago in securing pure water. We are convinced that given the will it can be prevented. To do this will require a national effort and will entail costs and sacrifices; the recommendations made in this Report will involve expenditure by the Government, local authorities, industry and householders alike. But we are confident that our proposals, if carried out, will secure happier and more healthy living conditions for millions of people, and that on all counts the cost of the cure will be far less than the national loss in allowing the evil to continue.

Para. 7: We are satisfied that the most serious immediate problem to be tackled is visible pollution by smoke, grit and dust, and we have been able to make definite recommendations in regard to these. We must emphasize that the problem is not one which can be solved overnight. Real improvement can be secured only by a continuous programme urgently and insistently carried out over a number of years. The objective of our recommendations is that by the end of ten to fifteen years the total smoke in all heavily populated areas would be reduced by something of the order of 80 per cent. This would mean a degree of freedom from air pollution which many parts of the country have not known for more than a century. With regard to gaseous pollution, there is not yet the knowledge to deal effectively with the whole problem; but we have made a number of recommendations for preventive action and have indicated the directions in which ultimate solutions may be found.

Para 8: It is basic to all our recommendations that at the outset it should be made the declared national policy to secure clean air, and that a statement to this effect should find expression in the new legislation—the " Clean Air Act "—which we are recommending.

Recommendations—Legislation

(1) Subject to certain exceptions the emission of dark smoke from any chimney should be prohibited by law.

(2) The use of efficient grit and dust arresting plant should be obligatory in the new industrial installations which burn

pulverized fuel, or solid fuel in any form at a maximum rate of 10 tons an hour or more. It should be the duty of the owner or occupier of premises on which any such installation, new or existing, is situated, to take measurements of grit emission and to inform the local authority of the results if so required. In other industrial installations fired by solid fuel, all reasonably practicable steps should be taken to prevent the emission of grit and dust.

(3) In the case of certain industrial processes in which the prevention of dark smoke, grit or harmful gases presents special technical difficulties, responsibility for ensuring that the best practicable means of prevention are used at all times should be vested in the Alkali Inspectorate, and the provisions of the Alkali Acts should be extended accordingly.

(4) The provisions now in force under a number of local Acts for regulating the design of new industrial furnaces should be included in general legislation.

(5) The law for the control of smoke from railways, and of pollution from colliery spoilbanks, should be brought up to date and strengthened. Responsibility for enforcement should rest with the local authorities.

(6) Local Authorities should have power under general legislation by means of Orders requiring confirmation by the appropriate Ministers to establish (1) smokeless zones in which the emission of smoke from chimneys would be entirely prohibited; and (2) smoke control areas in which the use of bituminous coal for domestic purposes would be restricted.

(7) Financial assistance should be provided by local authorities and by the Exchequer towards the costs incurred by house owners in converting appliances in smokeless zones and smoke control areas.

(8) Domestic heating appliances installed in all new premises should be of approved types.

(9) The present purchase tax of 50 per cent. on gas and electric room and water heaters should be removed.

(10) Except for the processes referred to in (3) above, responsibility for enforcing the law for the prevention of smoke and grit should be placed as a statutory duty on the local authorities.

(11) Local Authorities should be required to submit annual reports on their progress in smoke abatement to the appropriate Minister.

(12) Penalties for smoke offences should be increased.

Recommendations—Other

(1) The following documents should be prepared and issued by the British Standards Institution:

(*a*) codes of practice indicating the extent to which smoke can be reduced with good practice, and the means of securing such reductions.

(*b*) Standard specifications for smoke indicators, recorders and alarms.

(2) The British Standards Institution should also consider devising simpler standard methods of sampling flue gases to determine grit emissions.

(3) Stoking should be recognized as an operation requiring skill and firemen should be properly trained and remunerated.

(4) The Government Loan Scheme for approved fuel-saving equipment in industry should be extended to include equipment installed for the purpose of reducing air pollution.

(5) Consideration should be given to allowing the whole of the capital cost of new plant and equipment installed to save fuel and to prevent smoke to be charged against revenue for tax purposes in the year in which the expenditure is incurred.

(6) The most efficient practicable methods of removing sulphur from flue gases should be adopted at all new power stations in or near populated areas.

(7) The factor of pollution should be taken into account when future schemes for the electrification of the railways are being considered and the programme of electrification should be accelerated and extended. The changeover from steam to diesel shunting locomotives should be accelerated.

(8) The present law for the control of pollution by motor vehicles should be more rigorously enforced.

(9) The prevention of domestic smoke will require the replacement of bituminous coal now used in domestic premises in the "black areas" by smokeless fuels, and also the provision of new appliances, fitted with easy means of ignition, in which such fuels can be burnt satisfac-

torily. This should be secured by the progressive extension of smokeless zones and smoke control areas as increased supplies of smokeless fuels are made available.

(10) The British Standards Institution should prepare specifications and methods of testing for coke for household use and for domestic solid fuel appliances.

(11) Clean air should be the declared national policy and it should be recognized both by the Government and the nationalized fuel industries as an essential element in fuel policy in the future.

(12) Local authorities should employ adequate smoke-control staffs with the proper training and technical qualifications.

(13) Arrangements should be made to secure effective co-ordination as between local authorities in the black areas and especially in Greater London.

(14) Development and research work on the many technical problems now outstanding should be undertaken or accelerated.

(15) A " Clean Air Council " should be established to co-ordinate and encourage research work and to review the progress made in implementing any new legislation.

The Cost of Pollution

This Appendix arrives at the following main conclusions:

(1) The direct costs of pollution to which figures can be put (" however hazardous ") are as follows:

	£m. per annum
Laundry	25
Painting and decorating ..	30
Cleaning and depreciation of buildings other than houses	20
Corrosion of metals	25
Damage to textiles and other goods	52.5
	152.5

It is considered that these figures are under-estimates, and as certain items have been omitted, it is concluded that the direct costs of air pollution are *of the order of at least* £150 *million a year.*

(2) The " loss of efficiency." The following figures are given as " a rough guess at possible orders of magnitude ": £10 m. a year loss to agriculture; £55 m. a year loss of working efficiency in manufacturing industry; £60 m. a year in other sectors, including transport—altogether " the loss of efficiency resulting from pollution might be as great as the direct costs," but to avoid danger of over-estimates a figure of £100 m. a year is suggested.

(3) The value of the fuel lost under the conditions which produce smoke is estimated to be £25 to £50 m. a year, but it is considered that this should not be included as one of the costs of pollution.

The total estimated cost is given as £250 m. a year, equivalent to £10 per head in the black areas and £5 elsewhere throughout Great Britain, plus the value of the fuel lost.

DOMESTIC FUEL POLICY

The Simon Report

In March, 1946, *the Fuel and Power Advisory Council, the Chairman of which was Lord Simon of Wythenshawe, presented a report on " Domestic Fuel Policy " to the Minister of Fuel and Power. This was, and is, an important document for the smoke abatement movement, as the policy recommended was largely identical with that needed for the abolition of household smoke.*

The Committee came to the conclusion that " our coal is used for domestic heating with a degree of inefficiency which is not, so far as we can ascertain, even approached in any other country in the world." For reference some of the Committee's recommendations relating particularly to smoke prevention, are quoted (the reference after each paragraph being to the section of the " Summary of Objectives and Recommendations," as given on pages 32-35 *of the Report):*

National Fuel Economy—To ensure that all fuels shall be used in the most efficient and economical manner with due regard to the need for conserving the national reserves of coal. (1c)

Smoke abatement—To abolish the pollution of the atmosphere from domestic sources by soot and tar, and to reduce to the lowest practicable limit the emission of sulphurous gases. (1d)

The Government should encourage

the production of improved heating appliances for all fuels and for all domestic purposes. It is particularly important to develop multi-fuel appliances to burn efficiently and as smokelessly as possible both bituminous coal and smokeless solid fuels. (2a)

Minimum standards should be established as soon as possible for all leading types of appliances. (2b)

The manufacture and sale of new appliances falling below approved standards should be prohibited as soon as possible. (2c)

The Government should take steps to secure the mass production of standardized domestic fuel appliances. (2g)

In subsidized houses the Government should make the use of approved solid fuel appliances a condition of subsidy, and should consider the advisability of a free issue of such appliances as part of the subsidy. (2h)

Old fashioned coal grates in existing houses should be replaced wherever possible by new approved appliances. Subsidies should be granted by the Government to encourage widespread and rapid action on these lines. (2j)

Central heating plants should be accepted as the main means of heating blocks of flats or single large houses. (3a)

The Government should endeavour to ensure that the available supplies of smokeless solid fuel should be burnt in individual houses, and that suitable types of central heating and district heating plants should burn bituminous coal. (3b)

It should be the policy of the Government to replace bituminous coal in all single house appliances by smokeless solid fuel as rapidly as adequate supplies can be provided at a reasonable price. (4d)

The Government should encourage the largest practicable increase in the production of smokeless solid fuels suitable for domestic purposes. (5a)

The necessary legislation should be passed to enable smokeless zones to be established, and a few such zones should be declared, mainly for experimental purposes. (10)

It should be the target of a national domestic fuel policy to secure that the 50 million tons of bituminous coal now burnt with a working efficiency of 20 per cent. should be replaced in 20 years by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40 per cent. . . . . (11)

Of these recommendations progress has been made with respect to 2*a*, 2*b*, 2*g*, 2*h and* 10.

Attention may be drawn to action taken by the Ministry of Health with respect to 2*h. Circular* 170/48, *to Housing Authorities, dated* 11*th November*, 1948, *stated:*

Having regard to the continued importance of economy in fuel and the permanent need of cheaper and more efficient domestic heating, the Minister must in these circumstances ask all housing authorities to review present practice and in all future housing schemes to specify only the types of solid fuel heater contained in the lists of approved appliances circulated from time to time.

NATIONAL FUEL POLICY

The Ridley Report

The Committee appointed by the Ministry of Fuel and Power, with Lord Ridley as Chairman, published its report in September, 1952, *on "Policy for the Use of Fuel and Power Resources."* (*H.M.S.O.*, 6*s.* 6*d.*). *A review of the general findings of the Committee appeared in* SMOKELESS AIR, *Winter*, 1952, *in which reference was made to the attention given to smoke abatement. An appendix of the Report is devoted to this subject, and in view of its lasting importance is reprinted in full below.*

Appendix IV

Smoke Abatement

1. Chapter I, paragraph 4, states that "the best use of fuel and power is determined by the value of the resources consumed to provide the supply, the social costs to the community of producing or using it, and the value to the individual consumer of the specific fuel and power service."

2. One heavy social cost to the

community is the smoke pollution usually produced when raw coal is burnt inefficiently. It is impossible to measure all this cost in money. Estimates have been cited from time to time for parts of it (for instance, in the Egerton Report (Appendix A 4, 5)). In real terms it is certainly enormous as every-day observation in our large towns and cities shows—most clearly to those who know conditions abroad, where less coal is burnt raw in inefficient conditions. Among the social costs are the loss of sunlight and the harm to the health of the citizens, the reduction in the amenities of town life, the damage to buildings and textile fabrics, the extra costs of painting, washing, and laundry, and the loss of food production which results from the smoke deposit in the countryside around the towns. These are only some of the main losses which the community endures through smoke.

3. But apart from the loss which the community suffers from smoke pollution, there is the inefficiency of which smoke is the visible symptom.

4. The main sources of smoke pollution in the United Kingdom are:

(1) The millions of households which use raw coal burnt in old-fashioned open grates as the main source of heat comfort. There are perhaps 12 million such open fires in regular use, together burning more than 30 million tons of coal a year—and producing a million tons of smoke. Thus the townsman pays heavily for smoke, both directly as a coal consumer, and indirectly as a citizen living in dirty air.

(2) Smaller industrial boilers and furnaces burning raw coal.

(3) Steam railway locomotives.

5. In the Report proposals have been made for increasing the efficiency of fuel use in each of these three main smoke-producing uses:

(1) Domestic use. The Committee have recommended in Chapter V:

(*a*) The development of more efficient types of open fire which will burn coal with less smoke and greater efficiency even than the standard improved fires now coming into popular use.

(*b*) The use of more gas domestically during peak hours on the electricity supply system, with correspondingly greater supplies of coke.

(2) Industrial boilers and furnaces. The Committee have recommended in Chapter VI:

(*a*) The expansion of the fuel efficiency advisory service.

(*b*) Financial incentives to firms for installing fuel efficiency equipment.

(*c*) The requirement of prior approval by the Government for the heating installations in new industrial and commercial buildings.

(*d*) More schemes for the training of stokers in the efficient and smokeless firing of boilers and furnaces.

Eliminating smoke does not necessarily mean attaining fuel efficiency; in some conditions, smoke can be avoided by reducing boiler efficiency, for instance by admitting additional air. Happily, however, the efficient use of fuel does mean its smokeless use.

(3) Steam railway locomotives. There appear to be no practicable methods of making the standard steam railway locomotive fuel efficient and smokeless; progress here must come through the switch to other methods of traction which the Committee have recommended in Chapter VI on the score of fuel efficiency, but it cannot be done quickly because of the huge investment required.

6. All the above methods are means to increase fuel efficiency and incidentally to reduce smoke pollution. The Committee have considered also measures primarily for reducing smoke pollution. They are:

(1) The wider use of the low temperature carbonization process. This method produces solid smokeless fuel more acceptable to most householders and more easily burnable than gasworks coke in most existing grates; on these grounds the Committee have recommended in Chapter V that its extension should be encouraged.

(2) The more general adoption of smoke abatement bye-laws by local authorities. Under the Public Health Act, 1936, local authori-

ties may enact bye-laws intended to check smoke pollution from most sources other than the domestic chimney; about one in five of the urban authorities have done so. It is doubtful whether the more general adoption of the bye-laws would, in present conditions, make any great contribution to reducing smoke pollution in our towns. What is important is that consumers should be able to get the sorts of fuels which can be burnt efficiently in the equipment they have, and, even more important, that a fuel advisory service should be readily available to them. When these conditions obtain, there may be a case for the more general adoption of bye-laws, possibly with some stiffening of the penalties and widening of their scope. Until then, however, there is danger that more general and stiffer legislation against smoke might actually reduce fuel efficiency, as firms sought to avoid prosecution by using excess air in their appliances.

(3) The establishment of more smokeless zones. The Simon Report recommended that legislation should be passed to enable urban authorities to define parts of their areas where smoke emission would be prohibited. Since 1946 fifteen local authorities have been granted powers in private legislation to declare smokeless zones, and two smokeless zones—at Coventry and Manchester—are already in existence. Further progress in the establishment of smokeless zones depends on having enough smokeless fuel and suitable appliances. As they become available, there is, in the Committee's view, a good case for more widespread declaration of smokeless zones, in the cause both of reducing the social costs of smoke pollution and improving fuel efficiency.

THE LONDON SMOG, DECEMBER, 1952

The London smoke-fog of 5th to 9th December, 1952, is now recognized as probably the most severe incident of its kind yet experienced in this country or elsewhere. The principal facts may be given in summary form, as follows:

The fog developed on Friday, 5th December and continued until 8th December. It was marked by a period of virtually complete calm and for the low height, 200 to 500 feet, of the temperature inversion, beneath which the fog and pollution was concentrated.

Observations at County Hall showed a rise in average daily smoke concentration (mgm. per c. metre) from 0.49 on 3rd December to 4.46 on 7th and 8th December; and a rise in sulphur dioxide (parts per million) from 0.144 to 1.339. Air filters at the National Gallery became clogged during 24 hours of the fog at the rate of 26 times the normal, and in one period of four hours at a rate of 54 times the normal.

The number of deaths caused by the fog, during the two weeks following it, are given by Dr. Logan (op. cit.) as about 4,000 for Greater London. In the London Administrative County only, during the week following the fog, compared with the previous week, deaths from bronchitis rose from 121 to 872, and from diseases of the heart and circulatory system from 318 to 801. Nearly all age groups were affected, particularly those aged 45 and upwards. Deaths in children under one year were approximately doubled. During the period the deaths in other parts of the country showed no significant change. In the London County area the death rate, per million population, during the week following the fog was exceeded only in 1866 (cholera), 1873 (fog) and 1918 (influenza), but the *excess* of the rate over the normal for the period and season was greater after the 1952 fog than any occasion other than 1918. The excess over the normal in 1866 was 426; in 1873, 243; in 1918, 785; and in 1952, 445.

Reports of the disaster, to which reference should be made for full details, include the following, listed according to the principal aspects covered:

Medical

Mortality and Morbidity during the London Fog of December, 1952, *Ministry of Health Report.*

Dr. W. P. D. Logan; *Lancet*, 14th February, 1953.
Dr. J. A. Scott, Medical Officer of Health, L.C.C., Health Report, 1953.
Ibid. Glasgow Conf. Proc., N.S.A.S., 1953.

Meteorological—C. K. M. Douglas and Dr. K. A. Stewart, *Meteorological Magazine*, March, 1953.

Air Pollution—Dr. E. T. Wilkins, *J.R. San. Inst.*, 1954, 74, 1-21.
Dr. A. Parker, *Glasgow Conf. Proc.*, N.S.A.S.

General—Survey of the London Fog, *Smokeless Air*, Spring, 1953 (reprinted in pamphlet form.)
A. Marsh, *Glasgow Conf. Proc.*, N.S.A.S.

ESTIMATES OF POLLUTION

The following table of pollution discharged annually in the U.K. is based on a table of estimates given in the Beaver Report. Figures are in millions of tons, those in brackets being the quantity of fuel burned or carbonized in each class.

	Smoke	*Grit*	*Sulphur Dioxide*
Raw Coal Uses:			
Domestic (36.8)	0.9	0.1	0.9
General Industry (64.6)	0.8	0.8 (*a*)	1.0
Electricity generation (36.7) ..	small	0.3	0.4
Railways (13.8)	0.3	0.1	1.8
Coke Ovens (25.9)	small	small	0.1
Gas Works (27.2)	small	small	0.2
Coke Uses (14.7) (*b*)	nil	small	0.4
Oil Uses (9.0) (*c*)	small	nil	0.4
Totals	2.0	1.3	5.2

(*a*) Including grit from industrial furnaces other than steam raising.
(*b*) Excluding consumption in gasworks and blast furnaces.
(*c*) Including diesel, gas and fuel oils and creosote-pitch mixture.

RECENT PAPERS AND REPORTS

A Selected List

Air Pollution and Bronchitis. J. Pemberton and C. Goldberg. *B.M.J.*, September 4, 1954, 567.

Air Pollution, Committee on, Interim Report. H.M.S.O. 1953.

Air Pollution, Committee on, Final Report. H.M.S.O. 1954.

Auxiliary Fuel Firing: Effect on SO_3 content of flue gases from a coal fired boiler. K. Barker and P. F. Corbett. *J.Inst.F.*, **27**, 495.

B.E.A. 6th Report and Accounts, 1953-54. H.M.S.O.

British Empire Cancer Campaign, 31st Annual Report, 1953.

Carbonization Processes, New, Under Development, and Their Relation to Established Practice. D. T. Barritt and T. Kennaway. *J.Inst.F.*, 1954, **27**, 229.

Ceramic Drying Conference, *J.Inst.F.* 1954, **27**, 114-137 and 562.
Drying in Tile Manufacture. L. Bullin.
Notes on the Efficiency of Ceramic Dryers. J. S. Jones.
Jet-drying of Ceramic Clayware and Dipped Ware. A. J. Dale and G. Bird.

Chronic Bronchitis in General Practice. J. Fry. *B.M.J.*, January 23rd, 1954, 190.

Domestic Smoke Reduction. W. Davidson. *Smokeless Air*, 1954, **25**, 107-8.

Effects, Measurement and Control of the Atmospheric Pollution due to Combustion. P. C. G. Isaac, Univ. Durham, King's Coll., Dept. of Civil Eng. *Bulletin No.* 3.

ENERGY FOR BRITAIN: THE DECADES AHEAD. W. Idris Jones. *J.Inst.F.* (Presidential Address, 1954), **27**, 219.

ENGINEERING ASPECTS OF SMOKE POLLUTION. W. S. Patterson and P. C. G. Isaac, Univ. Durham, King's Coll.

EXTRACTION AND UTILIZATION OF FIREDAMP (Prog. Rev.). L. T. Minchin. *J.Inst.F.*, **27**, 148.

FESTIVAL HALL HEAT PUMP. P. E. Montagnon and A. L. Ruckley. *J.Inst.F.*, **27**, 170, 186.

FUEL CELLS, RECENT DEVELOPMENTS IN. A. M. Adams. *J.Inst.F.*, **27**, 366.

FUEL IN AGRICULTURE AND HORTICULTURE. F. H. J. Hine. (Prog. Rev.). *J.Inst.F.*, **27**, 605.

HIGHWAYS AND BY-WAYS IN COMBUSTION. D. T. A. Townend. 1952 Melchett Lecture. *J.Inst.F.*, 1954, **27**, 534.

LONDON EXPERIMENT IN SMOKELESS ZONES. A. M. Lindsay Taylor. *Smokeless Air*, Winter, 1954, **25**, 30-31.

MEASUREMENTS ON THE SMOKE FROM OPEN FIRES. L. L. Fox. *J.Inst.F.*, **27**, 385.

MENACE OF AIR POLLUTION, THE. P.E.P. (Political and Economic Planning).

MORTALITY AND MORBIDITY DURING THE LONDON FOG. Ministry of Health Report No. 95. H.M.S.O.

N.C.B. REPORT AND ACCOUNTS FOR 1953-54. H.M.S.O.

WH17476 NEW FRONTIER, A—AIR POLLUTION CONTROL. F. S. Mallette. *Proc.I. Mech.E.*, April, 1954.

LAN7124 REVOLUTION IN FUEL TECHNOLOGY. M. W. Thring. *J.Inst.F.*, **27**, 401.

SANITARY REFORM AND SMOKE REDUCTION. B. H. Wormsley. *Smokeless Air*, **25**, 83.

MAY2601 SMOG. R. S. Scorer. *Sc. Prog.*, 1954, **42**, 396-405.

KEN0780 SMOG. *J. Royal Met. Soc.*, 1954, **80**, 261-278.

Meteorological Aspects. H. W. L. Absalom.

Air Pollution Aspects. E. T. Wilkins.

Physiological Aspects. N. C. Oswald.

SMOKE ABATEMENT IN METALLURGICAL FURNACES. R. J. Sarjant. *Smokeless Air*, **24**, 129.

SMOKE ABATEMENT. W. B. Kennedy. Public Works and Municipal Services Congress and Exhibition, 1954.

SMOKE AND THE LAW. Arnold Marsh. *Smokeless Air*, 1954, **24**, 133.

SOLAR ENERGY FOR WATER AND SPACE HEATING. H. Heywood. *J.Inst.F.*, **27**, 334.

SPECIAL STUDY OF SULPHUR REMOVAL AND RECOVERY FROM FUELS: *Summary of Proceedings of London Conference*. *J.Inst.F.*, 1954, **27**, 103, 218, 530.

TOWARDS BETTER CONTROL OF INDUSTRIAL POLLUTION. G. H. Wilkinson. *Smokeless Air*, 1954, **24**, 142.

TOWARDS CLEAN AIR VIA SMOKELESS ZONES. W. R. Martine. *Smokeless Air*, 1954, **24**, 198.

WASTE, THE THREAT TO OUR NATURAL RESOURCES. F. E. Simon. 34th Earl Grey Memorial Lecture, King's College, Univ. Durham.



EVERY BUILDING *planned from the start* for complete electrical service—every new electric power or heating installation in an existing building—is another step towards healthier, happier living and a contribution towards the defeat of the "smog" menace.

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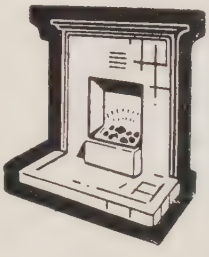
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The advantages of Solid Smokeless Fuels

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Appliances designed for solid smokeless fuels provide easy and accurate control of the rate of burning and heat output. This makes them extremely economical to run, and capable of long burning periods and overnight banking, thus saving work and attention.
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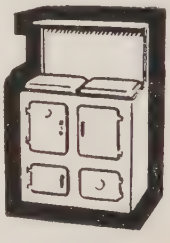
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Solid smokeless fuel appliances, because of their outstanding efficiency and fuel economy, are particularly suited to meet the requirements for heating services in Smokeless Zones. The S.S.F.F. offers free technical advice to local authorities who are considering the establishment of Smokeless Zones in their areas.



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DIRECTORY OF ORGANIZATIONS

Concerned with Air Pollution and Related Subjects

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Chief Inspector, Ministry of Housing and Local Government, Whitehall, S.W.1. (Whitehall 4300, Ex 589 and 590)

Deputy Chief Inspector, do.

District Inspectors, District I, 76 Elton Road, Darlington. (Darlington 5795).

District II, 21 Hillcrest Road, Great Crosby, Liverpool, 23. (Great Crosby 2439).

District III, 24 Victoria Road, Sheffield, 10. (Sheffield 63954).

District IV, 40 Kingsdown Road, Senneleys Park, Birmingham, 31. (Birmingham, Priory 2994).

District V, 41 Henleaze Avenue, Westbury-on-Trym. Bristol, (Bristol 68825).

District VI, 36 Spring Street, Hyde Park, London, W.2. (Ambassador 9925).

District VII, 2 Ashwood Avenue, Sale, Manchester. (Sale 9800).

Chief Inspector for Scotland—Department of Health for Scotland, St. Andrew's House, Edinburgh, 1. Edinburgh Central 2500.

AMERICA, AIR POLLUTION AND SMOKE PREVENTION ASSOCIATION OF, 4400 Fifth Avenue, Pittsburgh, 13, Pa.

AMERICA, OFFICE OF AIR AND STREAM POLLUTION, BUREAU OF MINES, U.S. Department of the Interior, Washington, 25, D.C.

ARCHITECTS, ROYAL INSTITUTE OF BRITISH, 66 Portland Place, London, W.1. (Langham 5721).

ARCHITECTS AND SURVEYORS, INCORPORATED ASSOCIATION OF, 75 Eaton Place, London, S.W 1. (Sloane 5615).

ARTS, ROYAL SOCIETY OF, 6 John Adam Street, London, W.C.2. (Trafalgar 2366).

BRISTOL AND DISTRICT REGIONAL SMOKE ABATEMENT COMMITTEE, Public Health Department, 48 Queen Square, Bristol, 1. (Bristol 20171).

BRITISH MEDICAL ASSOCIATION, B.M.A. House, Tavistock Square, London, W.C.1. (Euston 2111).

BRITISH STANDARDS INSTITUTION, British Standards House, 2 Park Street, London, W.1. (Mayfair 9000).

BUILDING CENTRE, 26 Store Street, London, W.C.1. (Museum 5400).

BUILDING RESEARCH STATION, Bucknall's Lane, Garston, nr. Watford, Herts. (Garston 2246).

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S.W.1. (Victoria 6161/2).

CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1. (Museum 1761).

CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7. (Fremantle 1121).

CIVIL ENGINEERS, INSTITUTION OF, Great George Street, London, S.W.1. (Whitehall 4577).

COAL BOARD, NATIONAL, Hobart House, Grosvenor Place, London, S.W.1. (Sloane 3401).

COAL UTILIZATION COUNCIL, 3 Upper Belgrave Street, London, S.W.1. (Sloane 9116).

COAL UTILIZATION RESEARCH ASSOCIATION, BRITISH, Randalls Road, Leatherhead, Surrey. (Leatherhead 4411).

COKE OVENS MANAGERS' ASSOCIATION, 1 Cliff Street, Mexborough, Yorks.

COKE RESEARCH ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1. (Mayfair 9736).

COKING INDUSTRY ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1. (Mayfair 9736).

Combustion Engineering Association, 6 Duke Street, St. James's, London, S.W.1. (Whitehall 5536).
County Boroughs' Association, Town Hall, Oxford. (Oxford 2206).
County Councils' Association, 84 Eccleston Square, London, S.W.1. (Victoria 5934).
County Councils in Scotland, Association of, 3 Forres Street, Edinburgh. (Edinburgh 34991).

Electrical and Allied Industries Research Association, British, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. (Leatherhead 3423). Laboratories, Wadsworth Road, Perivale, Middlesex. (Perivale 9511).
Electrical Development Association, British, 2 Savoy Hill, London, W.C.2. (Temple Bar 9434).
Electrical Engineers, Institution of, Savoy Place, Victoria Embankment, London, W.C.2. (Temple Bar 7676).
Electricity Authority, British, British Electricity House, Great Portland Street, London, W.1. (Museum 6844).

Fuel, Institute of, 18 Devonshire Street, London, W.1. (Langham 7124).
Fuel and Power, Ministry of, Thames House South, Millbank, London, S.W.1. (Abbey 7000).
Fuel Research Station, River Way, Greenwich, London, S.E.10. (Greenwich 3065). (Scottish Branch: Thorntonhall, nr. Glasgow. (Glasgow, Busby 1171)).

Gas Council, Gas Industry House, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).
Gas Engineers, Institution of, 17 Grosvenor Crescent, London, S.W.1. (Sloane 8266).
Gas Industries, Society of British, 56 Victoria Street, London, S.W.1. (Victoria 8948).
Georgian Group, 27 Grosvenor Place, London, S.W.1. (Sloane 2844).

Health Education, Central Council for, Tavistock House, Tavistock Square, London, W.C.1. (Euston 3341).
Heating and Ventilating Engineers, Institution of, 75 Eaton Place, London, S.W.1. (Sloane 3158).
Housing and Local Government, Ministry of, Whitehall, London, S.W.1. (Whitehall 4300). (see also Alkali Inspectorate).
Housing and Town Planning Council, National, 42 Devonshire Street, London, W.1. (Langham 8440).
Housing Centre, 13 Suffolk Street, London, S.W.1. (Whitehall 2881).
Housing Incorporated, Institute of, 37 Strand, London, W.C.2. (Trafalgar 3622).

Iron and Steel Federation, British, Steel House, Tothill House, London, S.W.1. (Whitehall 1030).
Iron and Steel Research Association, British, 11 Park Lane, London, W.1. (Grosvenor 4751).
Iron Founders' Association, British, 30 St. James's Square, London, S.W.1. (Whitehall 6866).

London and Home Counties Smoke Abatement Advisory Council, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1. (Abbey 6817).
Low Temperature Coal Distillers' Association of Great Britain Ltd., P.O. Box No. 21, Chesterfield, Derbyshire. (Bolsover 281).

Manchester and District Regional Smoke Abatement Committee, Town Hall, Manchester, 2. (Manchester, Central 3377, Ex. 341).
Mechanical Engineers, Institution of, Storey's Gate, London, S.W.1. (Whitehall, 7476/9).
Medical Officers of Health, Society of, Tavistock House South, Tavistock Square, London, W.C.1. (Euston 3923)
Meteorological Society, Royal, 49 Cromwell Road, London, S.W.7. (Kensington 0730).
Metropolitan Boroughs' Standing Joint Committee, Westminster City Hall, London, W.C.2. (Temple Bar 0111).

MIDLANDS JOINT ADVISORY COUNCIL FOR THE ABATEMENT OF SMOKE AND ATMOSPHERIC POLLUTION, Public Health Department, Council House, Birmingham, 3. (Birmingham, Central 7000, Ex. 60).

MUNICIPAL AND COUNTY ENGINEERS, INSTITUTION OF, 84 Eccleston Square, London, S.W.1. (Victoria 5083).

MUNICIPAL CORPORATIONS, ASSOCIATION OF, Victoria Station House, London, S.W.1. (Tate Gallery 0764).

NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE, 71 Grosvenor Street, London, W.1. (Hyde Park 9706).

Regional Offices:

Northern and North Eastern	St. Paul's House, 20/22 St. Paul's Street, Leeds, 1. (Leeds 20046).
	44A Great North Road, Newcastle-on-Tyne, 2. (Newcastle 813776).
	Queen's Buildings, 55 Queen Street, Sheffield, 1. (Sheffield 20169).
Eastern	Block "C," Government Buildings, Brooklands Avenue, Cambridge. (Cambridge 58951).
London and South Eastern	71 Grosvenor Street, London, W.1. (Hyde Park 9706).
Southern and South Western	16 Gt. George Street, Bristol, 1. (Bristol 21301).
	T.O.B. 11, Whiteknights Park, Earley, Reading. (Reading 61122).
Wales	Government Buildings, Gabalfa, Cardiff. (Cardiff 33141).
Midland and North Midland	5th Floor, Lancaster House, Gt. Charles Street, Birmingham, 3. (Central 5031).
	Room 87, Block 7, Government Buildings, Chalfont Drive, Nottingham. (Nottingham 77711).
North Western	89 Oxford Street, Manchester. (Central 9228).
Scotland	145 St. Vincent Street, Glasgow, C.2. (Glasgow City 7636).
	1 Peter Street, Dundee. (Dundee 2179).
	26 Drumsheugh Gardens, Edinburgh, 3. (Edinburgh 34331-5).

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY, 42 Queen Anne's Gate, London, S.W.1. (Whitehall 0211).

PARLIAMENTARY AND SCIENTIFIC COMMITTEE, 31 Palace Street, London, S.W.1. (Victoria 4992).

PUBLIC HEALTH AND HYGIENE, ROYAL INSTITUTE OF, 28 Portland Place, London, W.1. (Langham 2731/2).

PRESERVATION OF RURAL ENGLAND, COUNCIL FOR THE, 4 Hobart Place, London, S.W.1. (Sloane 4280).

PROTECTION OF ANCIENT BUILDINGS, SOCIETY FOR THE, 55 Great Ormond Street, London, W.C.1. (Holborn 2646).

ROYAL BURGHS OF SCOTLAND, CONVENTION OF THE, 51 Castle Street, Edinburgh. (Edinburgh 25179).

ROYAL INSTITUTION OF GREAT BRITAIN, 31 Albemarle Street, London, W.1. (Regent 5716).

RURAL DISTRICT COUNCILS' ASSOCIATION, 191/7 St. Stephen's House, London, S.W.1. (Whitehall 6641).

SANITARY ASSOCIATION OF SCOTLAND, ROYAL, 185 St. Vincent Street, Glasgow. (Glasgow, Central 3345).

SANITARY ENGINEERS, INSTITUTION OF, 118 Victoria Street, London, S.W.1. (Victoria 3017).

Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1. (Sloane 1770).

Sanitary Institute, Royal, 90 Buckingham Palace Road, London, S.W.1. (Sloane 5134).

Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788). *See also* Building Research Station, Fuel Research Station.

Scottish Counties of Cities Association, City Chambers, Edinburgh. (Edinburgh, Central 2424).

Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield. (Sheffield 27241).

Smoke Abatement Society, National
Central Offices: 30 Grosvenor Place, London, S.W.1.
East Midlands Division: Sanitary Inspectors' Office, 50 Shakespeare Street, Nottingham. (Nottingham 40584).
North East Division: Sanitary Department, Town Hall, Ashington. (Ashington 3210).
North West Division: Health Department, Town Hall, Manchester, 2. (Manchester, Central 3377, Ex. 339).
Scottish Division: City Chambers, Glasgow. (Glasgow, Central 9600, Ex. 421).
South East Division: Chief Sanitary Inspector, Town Hall, Acton, London, W.3. (Acorn 3232).
South Wales and Monmouthshire Division: Public Health Department, Dyfed Road, Neath, Glamorgan. (Neath 458).
West Midlands Division: Public Health Department, 67 Broad Street, Birmingham, 3. (Birmingham, Central 7000, Ex. 442).
Yorkshire Division: Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Leeds 30211, Ex. 29).

Social Service, National Council of, 26 Bedford Square, London, W.C.1. (Museum 8944).

Solid Smokeless Fuels Federation, 74 Grosvenor Street, London, W.1. (Mayfair 0382).

Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788).

Stationery Office, Her Majesty's, 423 Oxford Street, London, W.1. (Mayfair 3492).

Town and Country Planning Association, 28 King Street, London, W.C.1. (Temple Bar 5006).

Town Planning Institute, 18 Ashley Place, London, S.W.2. (Victoria 8815).

Urban District Councils' Association, 28 Victoria Street, London, S.W.1. (Abbey 6642).

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6. (Liverpool, Anfield 2271).

West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Liverpool 30211).

Women, Electrical Association for, 35 Grosvenor Place, London, S.W.1. (Sloane 0401).

Women of Great Britain, National Council of, 36 Lower Sloane Street, London, S.W.1. (Sloane 0619).

Women's Advisory Council on Solid Fuel, 18 South Molten Street, London, W.1. (Mayfair 5358).

Women's Gas Federation, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).

Guide to Publications

This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications which may be obtained either direct from the Society, or other bookseller.

Prices in brackets include postage and packing, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. If a number of items are ordered together excess postages will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

I THE LAW

CODE NO.

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevant sections in full of the principal Acts. New Edition, 1948.
Cloth, 5s. (5s. 3d.); paper covers, 3s. (3s. 2d.)

51. **Model Byelaws, Smoke Abatement.** For Local Authorities proposing to make byelaws under Section 104 of the Public Health Act, 1936. (H.M.S.O., 1954).
1d. (3d.)

57. **Model Clauses** (*Revised Edition*, 1953). House of Lords and House of Commons. Contains Model Clauses for Prior Approval, Smokeless Zones and Heights of Chimneys. (H.M.S.O., 1953). 15s. (15s. 4d.)

(See also III, 71)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans. for post-war reconstruction. 1s. (1s. 2d.)
3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 2d.)
4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)
5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 8d.)
6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)
7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (8d.)
8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 2d.)
9. **Smoke Abolition and the Public: Problems of Education and Propaganda.** Leslie Harden. Reprinted from 1948 Conference report. 6d. (8d.)

35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's view of the Case against Smoke. 4s. 6d. (4s. 8d.)
42. **Margate Conference, 1950.** The Des Vœux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as applied to New Housing and Railway Smoke. 6s. (6s. 2d.)
47. **Blackpool Conference, 1951.** The Des Vœux Memorial Lecture—" Power and Waste in their Social Setting," and papers on the Smokeless Operation of Small Steam Raising Plant, Policies for the Prevention of Industrial Air Pollution and Smoke Prevention in the Home—The Woman's Viewpoint. 7s. 6d. (7s. 8d.)
52. **Portsmouth Conference, 1952.** The Des Vœux Memorial Lecture—" Smoke and the Law," Progress Reports, Incentives for Smoke Prevention and Pollution, Problems in the Iron and Steel Industry. 6s. (6s. 2d.)
61. **Glasgow Conference, 1953.** The Des Vœux Memorial Lecture—" Atmospheric Pollution in Relation to Preventive Medicine," and papers on the London Fog Disaster, Smokeless Zones, Production Use and Availability of Solid Smokeless Fuels and the Efficient and Smokeless Combustion of Fuel Oils. 7s. 6d. (7s. 8d.)
70. **Scarborough Conference, 1954.** Des Vœux Lecture: " Air Pollution and Plant Life "; Presidential Address: " The Coal Crisis and the Society "; papers on Rail Transport and Smoke Abatement, the Industrial Uses of Gas and the Industrial Uses of Electricity. 7s. 6d. (7s. 8d.)
65. **The London Fog.** A first survey of the London fog disaster in December, 1952. Reprinted from *Smokeless Air*, Spring 1953. 6d. (8d.)

(See also VI, 62; VII, 29, 30, 32, 38, 45, 48, 63)

III GENERAL

11. **Smoke: The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 10d.)
13. **Smokeless Air.** The Society's quarterly magazine-type journal. News, articles, photographs, comment. 1s. (1s. 2d.). Per annum 4s., post free.
53. **Atmospheric Pollution: Its Origins and Prevention.** A. R. Meetham. A new publication covering the most important aspects of the problem. Fully illustrated. (Pergamon Press Ltd., 1952). 35s. (35s. 11d.)
58. **Committee on Air Pollution.** The Interim Report of the Beaver Committee appointed in July 1953 to examine the nature, causes and effects of air pollution and the efficiency of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations. (H.M.S.O. 1953) 1s. 6d. (1s. 8d.)
71. **Committee on Air Pollution.** The Final Report of the Beaver Committee. (H.M.S.O. 1954) 2s. 6d. (2s. 8d.)
66. **Facts about Smoke.** A two-colour leaflet for distribution at exhibitions, meetings, etc. £5 10s. 0d. per 1,000 12s. per 100 post free.

IV HISTORICAL

15. **Fumifugium or the Smoake of London Dissipated.** John Evelyn. The famous diarist's well-known tract (1616) reprinted by the Society, with an introduction by Rose Macaulay. Cloth 1s. 6d. (1s. 8d.); paper covers 6d. (8d.)
43. **The Society Comes of Age, 1929-1950.** The Story of the Society reprinted from *Smokeless Air*. Gratis

V INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 1s. (1s. 2d.)
36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949). 1s. (1s. 2d.)
60. **Industrial Smoke Prevention and National Fuel Policy.** Excerpts from the Report of the Committee on National Fuel Policy for the use of Fuel and Power Resources. 30s. 0d. per 100 or 5s. 0d. per dozen, post free. Single copies 6d. (8).

(See also II, 3, 4, 5, 6, 35, 42, 47, 52, 61, 70; III, 11, 53; VII, 55, 64)

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(See also II, 3, 8, 61; V, 36)

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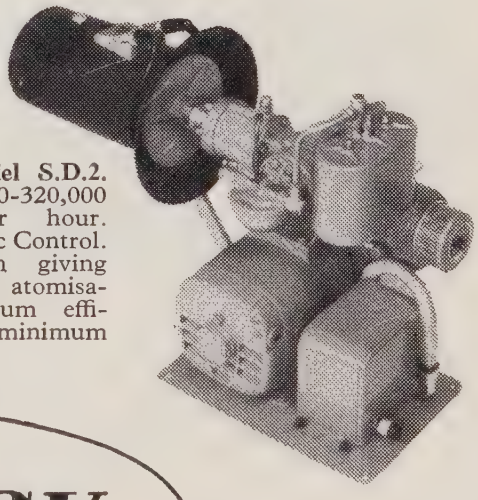
(*See also II*, 35, 47, 52)



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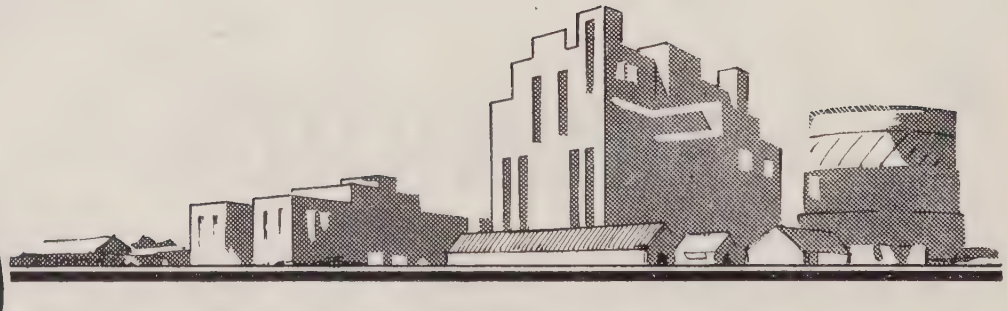
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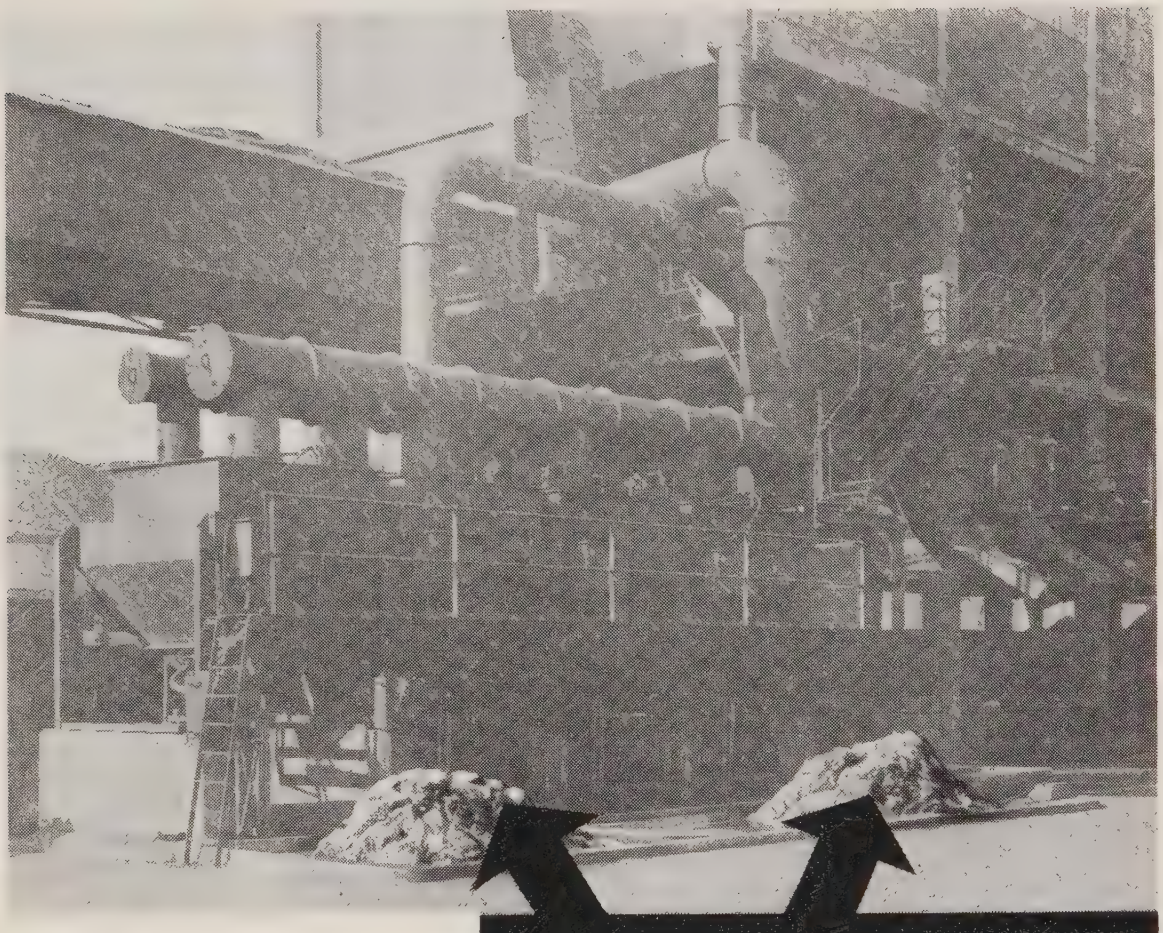


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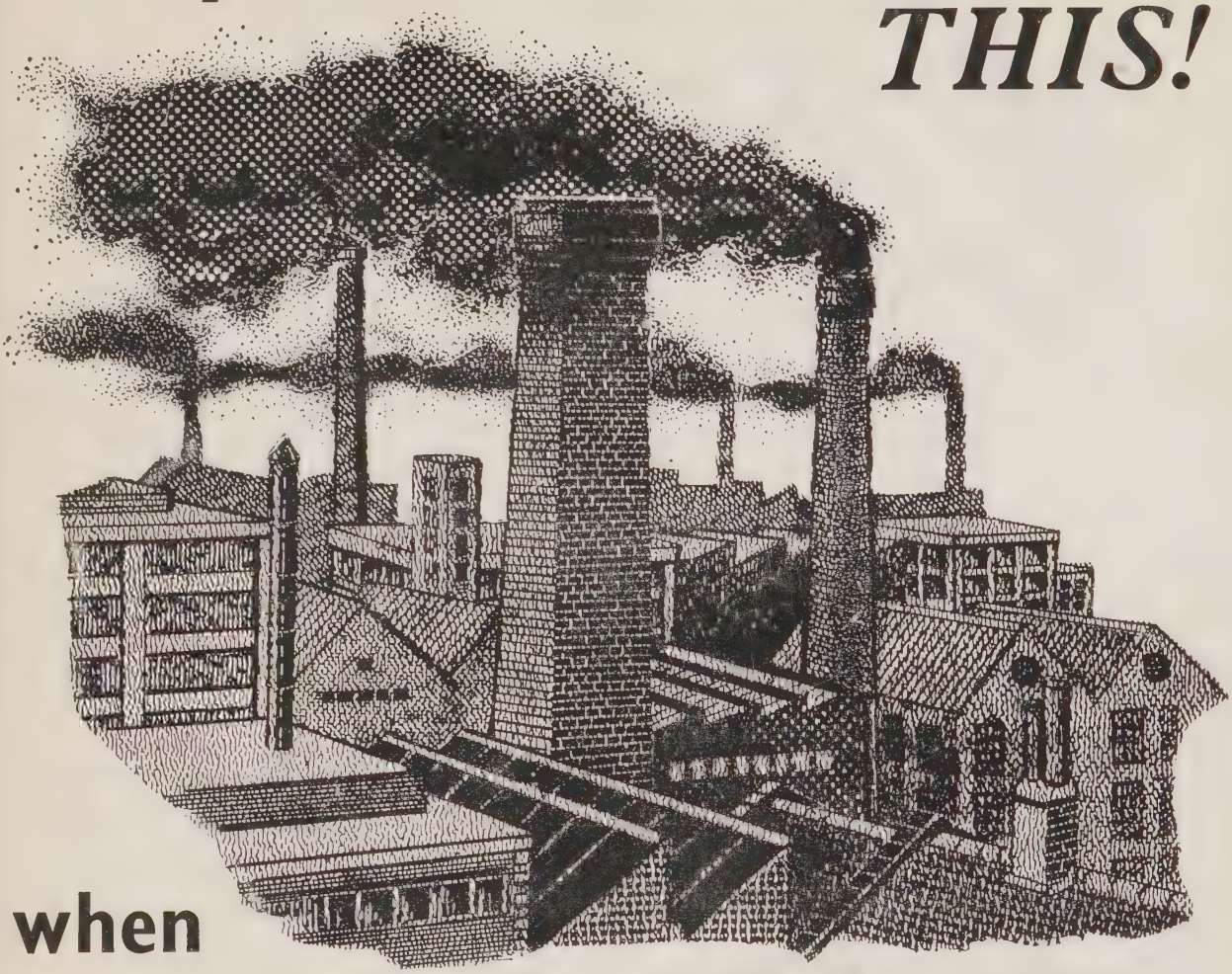


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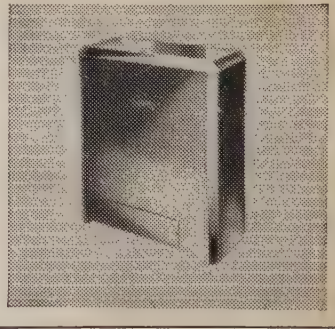


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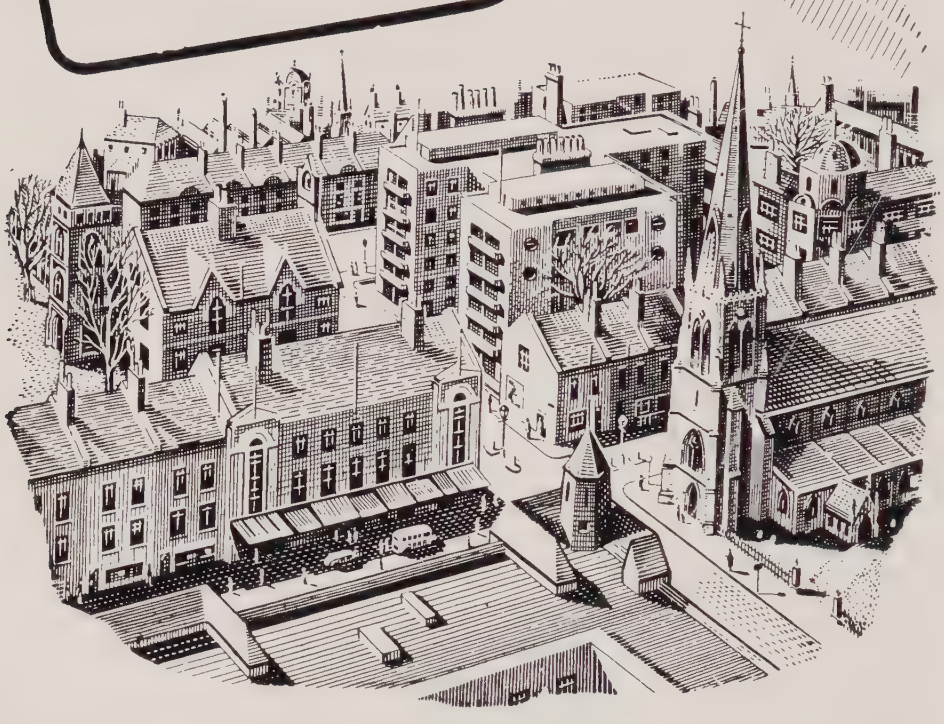
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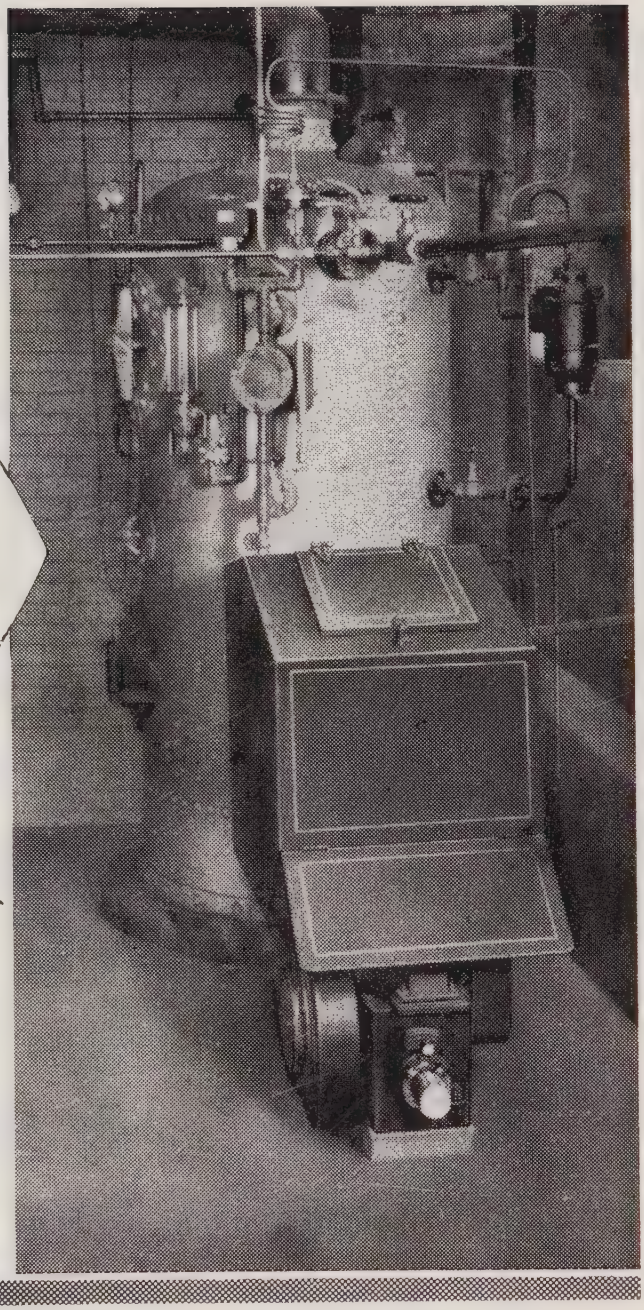
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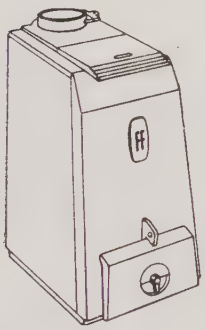
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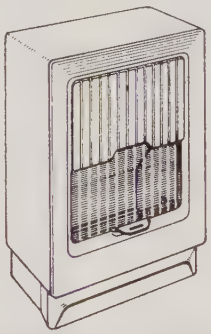
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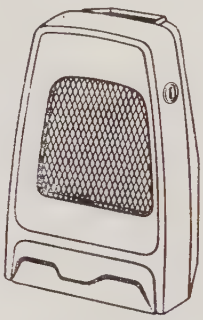
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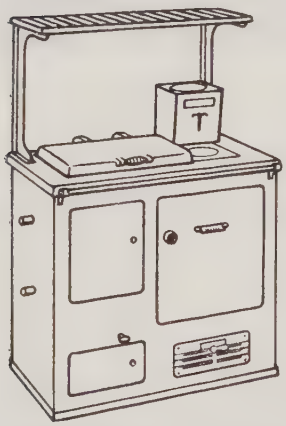
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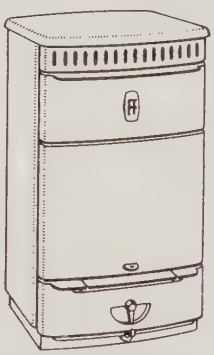
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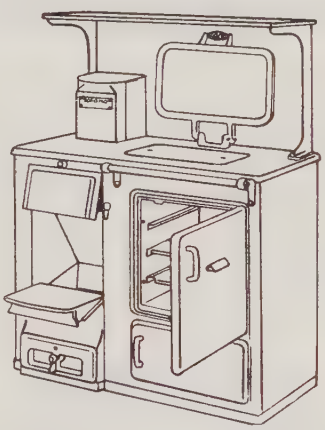
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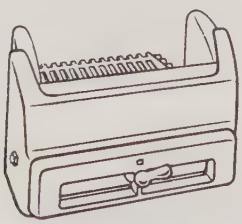
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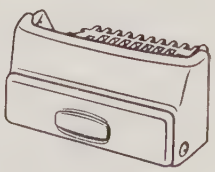
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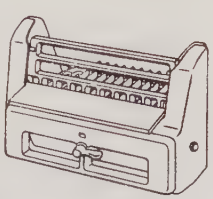
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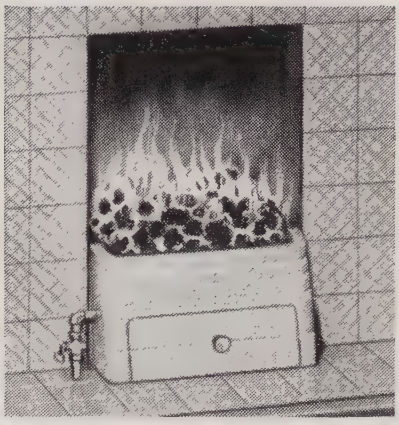


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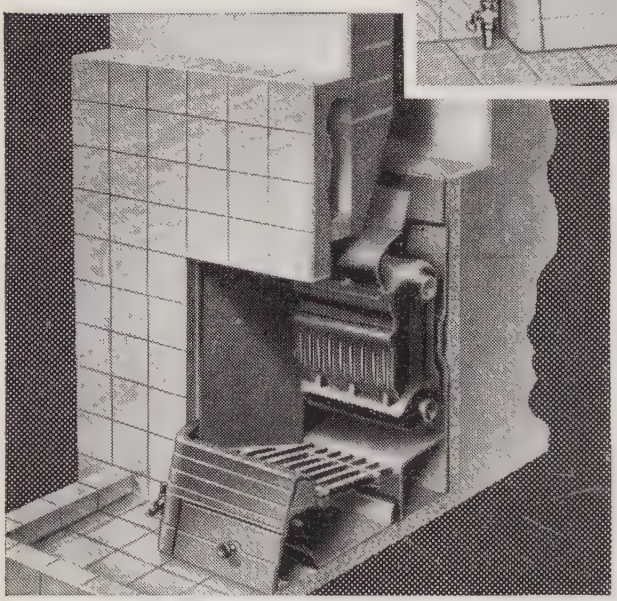
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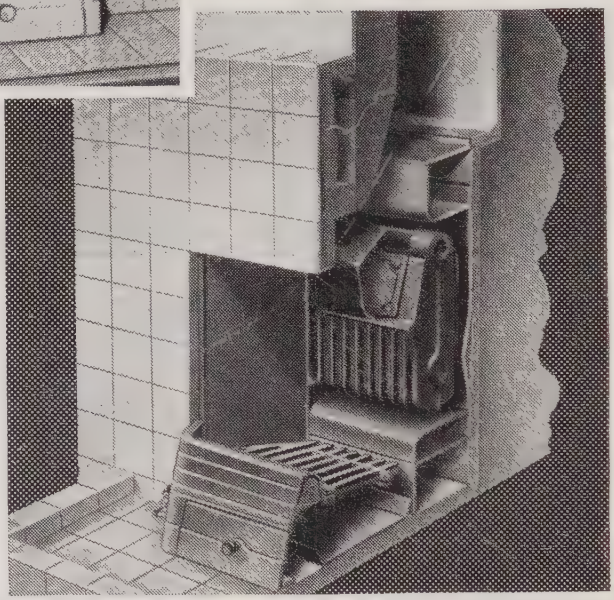
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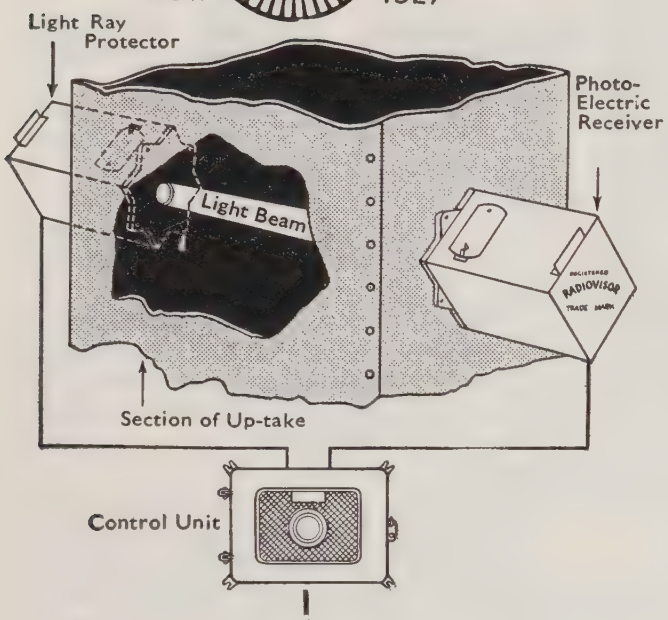
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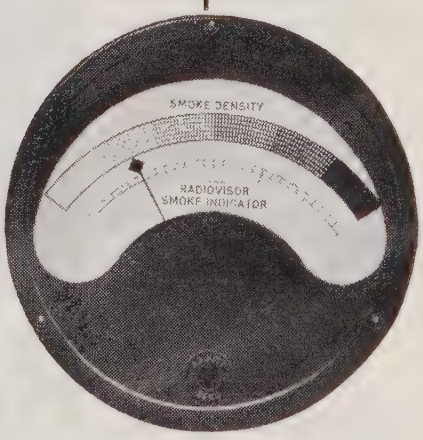
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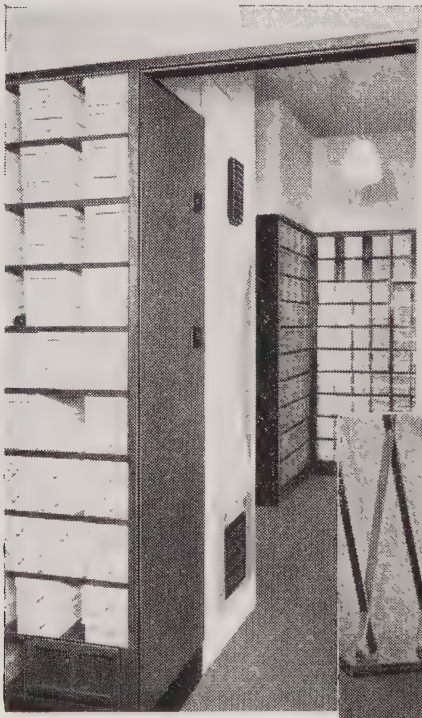
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Warm air is ducted from a small gas-operated unit, taking up just over 2ft. sq. of floor space in the stock room, to small outlet grilles in the walls. Temperature is controlled by a variable thermostat.

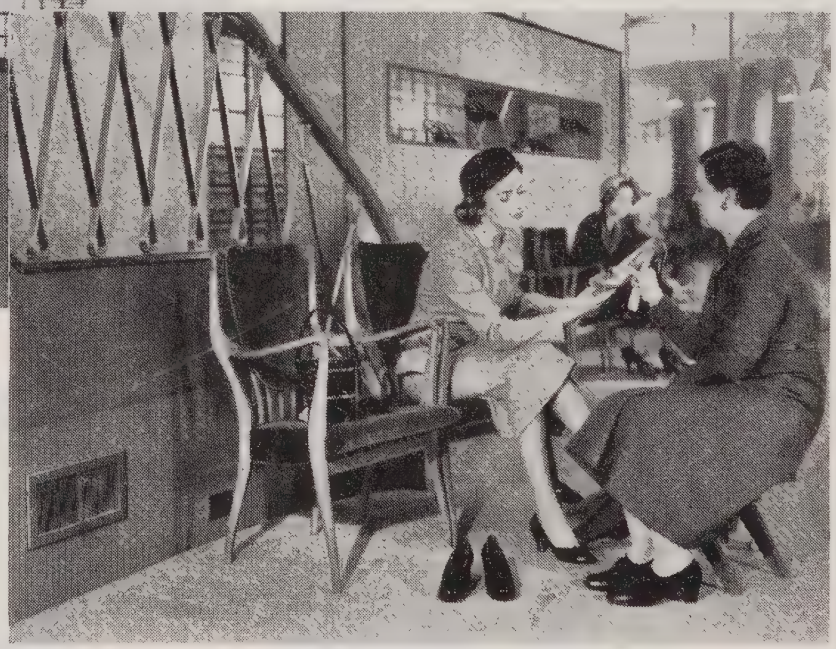
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NATIONAL SMOKE ABATEMENT SOCIETY

YEAR BOOK

1956

CONTENTS

N.S.A.S. Section *Page*

Officers of the Society 9
Executive Council 9
Divisional Councils 10
26th ANNUAL REPORT and DIVISIONAL REPORTS 11
Affiliated Local Authorities 20
Information about the Society 22
Services to Members 23
Accounts for Year Ended 30th June, 1955 24
The Covenant Subscription Scheme 26
Subscriptions and Donations for Year Ended 30th June, 1955 27

General Section

The Law Relating to Smoke, etc. 38
Recent Local Legislation 38
The Alkali &c., Works Regulation Act 39
City and Guilds of London Institute Examinations .. 39
Investigation of Air Pollution and other Work of the Fuel Research Organization 40
The National Industrial Fuel Efficiency Service .. 41
The Beaver Report 42
Estimates of Pollution 44
The London Smog, 1952.. 44
The Clean Air Case 45
History of Air Pollution in Great Britain 46
Recent Papers and Reports 46
Directory of Organizations 49
Guide to Publications 55

Advertisers

Bigwood and Son, Ltd., Joshua.. 1
British Electrical Development Association ii
Coalite and Chemical Products Ltd. 48
Drummond Patents Ltd. 53
Gas Council 8
General Electric Co. Ltd. 59
Grange-Camelon Iron Co. Ltd. 3
Holmes & Co. Ltd., W.C. 54
Honeywell-Brown Ltd. 64
Ideal Boilers and Radiators Ltd. 4
Midland Rexco Ltd. 60,61
Mirrlees Watson Co. Ltd. 2
National Industrial Fuel Efficiency Service iv
Radiation Group Sales Ltd. 6
Radiovisor Parent Ltd. 5
Shorrock Superchargers Ltd. 62
Simon Carves Ltd. 36
Solid Smokeless Fuels Federation 35
West's Gas Improvement Co. Ltd. iii
Woodall Duckham Construction Co. Ltd. 63

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Elected Divisional Representatives

Scottish Division

Mr. J. F. Anderson, Mr. J. Innes, Bailie W. Montieth.

North West Division

Dr. J. L. Burn, Dr. J. S. G. Burnett, Mr. H. V. Cass, Mr. S. N. Duguid, J.P., Mrs. L. Hayhurst, Mr. W. L. Mather, M.C., T.D., Alderman Professor F. E. Tylecote, J.P.

North East Division

Alderman J. Chapman, M.B.E., Alderman P. S. Hancock, O.B.E., Mr. P. C. G. Isaac.

Yorkshire Division

Dr. I. G. Davies, Mr. J. Goodfellow, Mr. E. J. Winfield, Mr. J. Law, Mr. A. C. Saword.

West Midlands Division

Mr. G. W. Farquharson, Mr. W. L. Kay, Dr. W. R. Martine, O.B.E., T.D.

East Midlands Division

Councillor the Rev. A. Brooke Westcott, Mr. F. G. McHugh, Mr. A. Wade, M.B.E.

South West Division

Mr. G. W. Dhenin, Mr. F. J. Redstone.

South East Division

Mr. N. Bastable, Dr. S. G. Burgess, Mr H. G. Clinch, M.B.E., Miss M. Godby, Dr. R. Lessing, Mr. J. J. Matthews, Mr. G. Nonhebel, Dr. A. J. Shinnie, O.B.E., Mr. L. A. Stroud, Dr. W. C. Turner.

South Wales & Mon. Division

Alderman Dr. C. A. Bence, Mr. Evan Thomas.

Appointed Representatives of National Bodies in Membership

Mr. M. G. Bennett (*British Transport Commission*).
Commander C. Buist, M.V.O., R.N. (Ret.) (*Low Temperature Coal Distillers Association*).
Mrs. D. M. Charlton (*Women's Advisory Council on Solid Fuel*).
Dr. T. P. Colclough, C.B.E. (*British Iron and Steel Federation*).
Mr. J. Cooke (*Solid Smokeless Fuels Federation*).

(*Continued overleaf*)

Dr. H. E. Crossley (*Central Electricity Authority*).
Mr. V. W. Dale (*British Electrical Development Association*).
Dr. F. J. Eaton (*Institution of Gas Enginners*).
Dr. G. E. Foxwell (*Institute of Fuel*).
Miss J. Frith, O.B.E. (*Women's Gas Federation*).
Mr. Leslie Hardern (*The Gas Council*).
Mr. H. R. Hodgson (*National Coal Board*).
Mr. H. S. Horsman or Mr. C. T. Melling (*Institution of Electrical Engineers*).
Dr. J. Johnstone Jervis (*British Medical Association*).
Mr. H. V. Lobb (*Royal Institute of British Architects*).
Mr. W. R. McGrath (*Sanitary Inspectors' Association*).
Mr. J. W. Moule (*South of Scotland Electricity Board*).
Miss V. Norvick or Mrs. J. Falconer (*Electrical Association for Women*).

Chairmen of Committees

Technical: Dr. T. P. Colclough (*Deputy*, Mr. S. N. Duguid).
Conference: Mr. J. J. Matthews.

Co-opted to Technical Committee of the Executive Council

Mr. W. A. Damon (*Ministry of Housing and Local Government*).
Dr. C. Forrester (*Ministry of Fuel and Power*).
Mr. J. S. Hales (*British Coal Utilization Research Association*).

Divisional Councils

Scottish

City Chambers, Glasgow (Central 9600 Ext. 421).
President: John Innes.
Hon. Secretary: Norman Fraser.

North West

Health Department, Town Hall, Manchester, 2 (Central 3377 Ext. 339).
Chairman: H. V. Cass.
Hon. Secretary: H. Moore.

North East

Sanitary Department, Council Offices, Ashington, Northumberland (Ashington 3210).
Chairman: Alderman J. Chapman, M.B.E.
Hon. Secretary: G. W. Tate, M.R.S.H., F.S.I.A.

Yorkshire

Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1 (Leeds 30211 Ext. 29).
Chairman: A. C. Saword, D.P.A., F.R.S.H., F.S.I.A.
Hon. Secretary: James Goodfellow, F.R.S.H., A.M.I.S.E.

West Midlands

67 Broad Street, Birmingham 1 (Central 7000 Ext. 442).
Chairman: Councillor Eric B. Gibbons.
Hon. Secretary: G. W. Farquharson, M.S.I.A.

East Midlands

Sanitary Inspector's Office, 50 Shakespeare Street, Nottingham (Nottingham 40584).
Chairman: Alderman S. Cooper.
Hon. Secretary: A. Wade, M.B.E., F.R.S.H.

South East

Town Hall, Acton, London, W.3. (Acorn 3232).
Chairman: Alderman C. H. Smith, O.B.E.
Hon. Secretary: J. J. Matthews, M.R.S.H.

South Wales and Monmouthshire

Public Health Department, Dyfed Road, Neath (Neath 458).
Chairman: Cllr. Dr. C. A. Bence.
Hon. Secretary: Evan Thomas.

Headquarters Staff

Arnold Marsh, O.B.E., M.SC.TECH., M.INST.F. (*Director and Secretary: Editorial*).
L. Nevard, B.A.(HONS.), F.S.S. (*Administrative Secretary; Advertising, Exhibitions*).
H. C. F. Kapps, B.A. (OXON.) (*Information Officer; Librarian*).
Mrs. D. M. Wolff (*Accounts*).
Mrs. J. Tutton.
Mrs. S. Burden.
Miss T. Gordon.

TWENTY-SIXTH ANNUAL REPORT

for the Year ended 31st December, 1955

GENERAL REVIEW

The most important events of the year were the two Clean Air Bills brought before the House of Commons. The Private Member's Bill, introduced by Mr. Gerald Nabarro, with all-party support and the co-operation of the Society, was given its second reading on 4th February. It was welcomed by many members but was withdrawn when, during the course of the debate, the Minister of Housing and Local Government gave an undertaking that the Government would prepare and introduce its own Bill, based also on the Beaver Report, during the course of the session. There is no doubt that the action of Mr. Nabarro accelerated the Government's decision and its detailed consideration of the required legislation, and the Minister himself admitted that if Mr. Nabarro " has been pushing us along a little, nobody resents it less than I do."

Mr. Nabarro's decision to use the opportunity given to him by the ballot for Private Members' Bills, by introducing one on Clean Air, was contingent on him being given the support of the Society. An urgent decision had to be made by the Society's officers, whose action was fully endorsed by the Executive Council, and it was agreed not only to give moral support, but also to provide for the services of the expert advisers and legal draftsmen, without whom such a measure cannot be satisfactorily prepared. The Society has every reason to be gratified with the outcome of its action, and this Report provides the opportunity for recording an expression of thanks and appreciation to Mr. Nabarro, not only for his timely action, but also for so skilfully bringing it to such a desirable conclusion.

Despite the interruption caused by a General Election, the Government succeeded in introducing their promised Bill on the day before Parliament rose for the summer recess: a circumstance which provided ample time for discussion before the Second Reading debate on 3rd November. This debate was fully reported in the Winter 1955 issue of *Smokeless Air*. The Bill was studied in detail by the Society's Technical Committee and Executive Council, and a considerable number of amendments were proposed. Co-operation with Mr. Nabarro was again agreed, and most of the Society's proposed amendments have been included in a list of some seventy amendments that were tabled in his name shortly before the Christmas recess. Many of these were concerned only with minor and drafting points, but others sought to secure major improvements and a general strengthening of the Bill.

It is hoped that in the next Annual Report of the Society it will be possible to record the final steps leading to a Clean Air Act, which although it may not be all that could be desired, will be adequate for the next phase of steady progress towards clean air.

Although the two Bills were the highlights of the year, a considerable amount of other work and investigations have been started or continued, and, through many papers and articles, education and propaganda from the highly technical to the popu-

lar, have been maintained. References to some of the activities are included in the General Information section of the *Year Book* in which this Report is published.

Reference may be made to the publication, at the end of the year, of a new Report from the Fuel Research Station of the D.S.I.R. on the Investigation of Atmospheric Pollution, covering the ten year period, 1945-54. It is gratifying that this information should at last be available in print and that the difficulties that have prevented its annual publication, due first to the war and then to the remarkable growth of the Investigation, have now been overcome.

Among developments in smokeless zones during the year were the coming into operation of such areas in Salford, Bradford and the City of London, and the extension of the original central zone in Manchester. Bradford's 20 zones total 1,500 acres and contain more than 11,000 premises. The City of London smokeless zone, which covers the whole of the city area, is a development of especial and symbolic importance. Plans for smokeless zones in other cities were announced during the year and Ministerial approval was given for the first two zones in Birmingham.

Of considerable importance to the future progress of smoke prevention was the publication during the year of the railway modernization plans, with emphasis on electrification and dieselization, and the plans for the development of power stations using nuclear energy.

In the technical field mention may be made of the three committees set up by the British Standards Institution, on the recommendations of the Beaver Committee, to prepare specifications for smoke alarms and recorders, a code of good practice for smoke emission, and standards for grit emission measurement.

THE SOCIETY

The Society has had a very active and encouraging year, during which a considerable amount of attention has been devoted by both the Executive Council and the staff to the Clean Air Bills, with the results that have already been described. Membership has continued to build up and at the end of the year the number of local authority members and associates reached 500. There are also 341 individual members and 176 corporate members.

To members and representatives the most apparent signs of the Society's work are no doubt the annual conference, divisional meetings and the publications they receive. In addition, there are many other varied activities, in publicity and services, to which reference was made in a report described in the Autumn 1955 issue of *Smokeless Air*. Reference is made later to the need for the Society to be able to develop its work and to make better use of the many opportunities that are now presenting themselves.

The Bournemouth Conference

The Annual Conference, held at Bournemouth on 28th to 30th September, was marked by the highest attendance yet seen at these meetings. The total was 578, compared with 490 the previous year. 247 local authorities and 65 other organizations were represented.

The emphasis of the programme was on the Beaver Report and the Clean Air Bill. This was dealt with in an "Any Questions" session, with a panel consisting of the Rt. Hon. Alfred Robens, M.P., and Mr. Gerald Nabarro, M.P., a session of papers on the local authority viewpoint, and one with papers by members of the Beaver Committee. The authors of these sessions were, respectively, Alderman

C. H. Smith, Councillor Eric Gibbons, Mr. J. Graham and Dr. John Douglas; and Miss A. D. Boyd, Dr. J. L. Burn, Dr. G. E. Foxwell, Mr. Gordon Nonhebel, and Mr. C. J. Regan. The Chairmen were Mr. F. J. Redstone and Dr. R. Lessing.

The domestic problem was discussed in a session on " Recent Progress in Domestic Heating by Centralized Methods," with Dame Vera Laughton Mathews in the Chair, and papers by Alderman C. P. Russell, Mr. Bryan Donkin, Mr. J. W. Moule, Dr. S. A. Burke, and Dr. W. Davidson.

On the closing day of the Conference the Des Voeux Memorial Lecture was presented, by Dr. A. Parker, Director of the Fuel Research Station, on " The Destructive Effects of Air Pollution on Materials." This excellent review of the subject, which was illustrated by slides, was warmly appreciated.

At the close of the Conference the following resolution was adopted:

> " This 22nd Annual Conference of the National Smoke Abatement Society welcomes the Government's Clean Air Bill, now before Parliament, as embodying in the broad scope of its proposals the principles for which the Society has always striven. The Society congratulates the Minister of Housing and Local Government upon his speed in implementing the proposals of the Committee on Air Pollution and instructs the Executive Council to continue to afford to the Minister all possible assistance in strengthening the provisions of the Bill."

The discussions were full and of a high standard, and the extent to which the conference participated in them is shown by the 57 names that appear in the index to contributors in the *Proceedings* of the Conference.

It was announced that an invitation had been accepted to hold the 1956 Conference, from 3rd to 5th October, in Southport.

The Divisions

The growth of the Divisional Councils in recent years has been an important sign of the Society's progress, and as their own reports, which follow, show, excellent work is being done by means of meetings and visits of instructional interest. All parts of the United Kingdom are now covered by Divisional Councils, with the exception of Northern Ireland and the South West. In the latter area there is an advisory committee of local authorities (now known as Bristol and West Clean Air Committee), which is an Associate Member of the Society.

The difficulties experienced in the North East, where regulations have limited the attendance of local authority representatives to one meeting a year, may shortly be resolved by setting up a parallel local authority committee, which, as a purely local authority organization, would not be subject to this unfortunate restriction.

Officers

Sir Ernest Smith's term of office as President was due to end, under the Constitution, at the 1955 Annual General Meeting, and Lord Horder had consented to nomination for election as the succeeding President. Lord Horder's death, before the meeting at which his election would have been declared, was a grievous blow to the Society. A further nomination was not possible in the time available, and accordingly the Executive Council invited Sir Ernest to remain in office for a further year. Sir Ernest consented, and the invitation was warmly endorsed by the Annual General Meeting.

New Vice-Presidents, whose election was announced at the meeting, were Alderman J. J. Milton, of Bristol, Mr. James Law, former Chief Smoke Inspector of the Sheffield, Rotherham and District Smoke Abatement Committee, and Dr. W. R. Martine, retiring Chairman of the Executive Council.

Newly elected members of the Executive Council were Mr. E. J. Winfield (Yorkshire), Mr. T. H.

Turner (East Midlands), Mr. G. W. Dhenin (South West), and Dr. S. G. Burgess (South East). During the year newly appointed members to the Council, made by " national " bodies in membership were Mr. H. V. Lobb (Royal Institute of British Architects), Mr. J. W. Moule (South of Scotland Electricity Board), and Miss V. Norvick (Electrical Association for Women).

At the first meeting of the new Executive Council, at Bournemouth, Mr. F. J. Redstone (Bristol) was elected Chairman, and Dr. J. S. G. Burnett (Preston) and Mr. John Innes (Paisley) Deputy Chairmen. Dr. T. P. Colclough has been re-elected Chairman of the Technical Committee, with Mr. S. N. Duguid as Deputy Chairman, and Mr. J. J. Matthews has been re-elected Chairman of the Conference Committee.

Obituary

We regret to have to record the death, on 22nd September, of the Society's Honorary Auditor, Mr. Norman Abbott, of Manchester. Mr. Abbot, through his firm, Abbott and Sons, had from the early days, when the Society's headquarters were in Manchester, shown his interest in it and its work by this greatly valued service. We are glad to be able to state that his partners, Mr. William Scott and Mr. F. R. Terras, have informed us that they will be happy to continue to assist the Society in this essential and important way.

Appreciations were published in *Smokeless Air* of other members and friends of the Society whose deaths had to be recorded during the year. They included Lord Horder, President-elect; Lady Smith, the wife of the President; Miss Violet C. Roberton, Vice-President and well-known member of the Scottish Division; Dr. Stuart Laidlaw, Medical Officer for Glasgow; Mr. P. H. Saunders, Chief Smoke Inspector, Liverpool; and Mr. Alec Longfellow, Chief Sanitary Inspector, Rowley Regis.

Staff

During the year a change in staff was made, with the appointment of Mr. H. Kapps, B.A., as Information Officer and Librarian. The Executive Council agreed that a new junior assistant be engaged, but it was not until the end of the year that it was possible to make an appointment. The headquarters staff now totals seven.

Offices

Reference has been made to the removal from Grosvenor Place, made necessary by the demolition of the building prior to rebuilding. After some difficulty, suitable accommodation was found at Palace Chambers, Bridge Street, Westminster, and occupied from 20th April. The premises include five office rooms, a store room and a further room that is used for committee meetings and for the permanent display of exhibition material.

General Activities

Reference has already been made to a report on the activities of the Society, which continue steadily to increase and to take up a considerable part of the staff's time. They include the loan of exhibition material, mainly to local authorities, and the preparation of new items for this purpose; the loan of photographs and publications to writers, students and lecturers; the answering of inquiries of a very varied nature; the sale of publications, and of course the preparation and publication of *Smokeless Air* and the *Year Book*, the *Conference Proceedings* and propaganda leaflets. A number of lectures and talks have also been given during the year and help has been given in the arrangements for others. A great deal of further publicity work and organization of services is waiting to be started.

Finance and Development

The audited financial statement, for the year ended 30th June, 1955, which follows, shows a further improvement in the Society's income and reserves,

and also in expenditure. Considerable help has been given during the last two years by a legacy of £2,000 and by a number of members, mainly industrial, agreeing to augment their contributions to the Society for a limited period. The financial position does not however yet allow for the expansion of work that is so urgently needed and will call for a continuous *annual* expenditure, mainly for salaries and running expenses for printing, etc.

The passing of the Act should mark the beginning of an intensive new phase in the campaign for clean air, which, if it is to succeed, must be continued over the next decade or more. It must, as the Beaver Committee emphasized, include educational work, publicity and propaganda on a scale much larger than hitherto. The new Act will empower local authorities to expend money for this purpose, and it is hoped that they will find it possible to assist the Society to provide the services and materials that will be required, and which it will be the responsibility of the local authorities to use. An appeal to local authorities is therefore being prepared, asking them to augment their present subscriptions to enable the Society to increase its annual income from the present £8,000 to £20,000 a year. The figure aimed at is still very modest for the work waiting to be done, especially if it is compared with the cost of other campaigns that seek to create a new public opinion, but it will at least enable the Society to make progress and to demonstrate what it is confident it can do.

This work, much of which can best be undertaken by the Society because of its independence, experience and repute, was epitomized in the President's address at Bournemouth, and for the sake of emphasizing our belief that the next few years will be the most responsible and important—and, we hope, rewarding—in the history of the Society, may be reiterated as follows:

(1) To observe, discuss and where necessary make representations about the working of the new Act.
(2) To assist, especially in publicity and education, the more active local authorities.
(3) To continue to educate and ginger-up the inactive local authorities.
(4) To note, and if necessary criticize, the way the Government departments are doing their part, and to assist them in any way.
(5) To continue to publicize the problem and to educate—and be of service to—the public and industry generally.
(6) To encourage research and development and to help to make their results known and used.
(7) To continue to act, as we are doing already, though to a steadily increasing degree, as a centre of information that is freely available to all.

F. J. REDSTONE, *Chairman.*
ERNEST SMITH, *Hon. Treasurer.*
ARNOLD MARSH, *Director.*

SCOTTISH DIVISION

During the past year the Division under the Chairmanship of Mr. John Innes, Paisley, has endeavoured, by public meetings in collaboration with other interested organizations, to sustain public interest in the proposed Clean Air Bill.

The Annual Conference — entitled "Beaver—And After"—was held in the Council Hall, Ayr, on 20th and 21st October, 1955, having been postponed from the usual dates in May owing to the General Election. Hospitality was extended by the Town Council, and a visit by bus to Culzean Castle as guests of the Council was thoroughly enjoyed by the delegates. The papers given were of a high standard and copies are being printed for distribution to the delegates.

NORMAN FRASER, *Hon. Secretary*

NORTH WEST DIVISION

Interest in smoke abatement, now perhaps more topically referred to as Clean Air, continues to grow, and the public appear to be realizing the importance of a healthy atmosphere in the life of the community. This quickening of interest is manifested in the newspapers, where the references to the condition of the atmosphere are now as frequent as they were rare a few years ago. The high light of 1955 has been the Clean Air Bill which had been awaited with keen interest in the North West. It is a matter of some concern that the terms of the Bill fail to give cause for satisfaction. It is hoped that the defections will be remedied by the introduction of appropriate amendments and that the Bill will emerge from the Committee stage transformed into an effective instrument.

Meetings of the Divisional Council have been held at regular intervals throughout the year, and of the four held, three took place in Manchester and one in Blackburn. Particular attention was given to the final report of the Beaver Committee and observations were forwarded for the consideration of the National Executive Council.

In the main, the recommendations in the Beaver Report were approved, in some cases the Council desired stronger action, but there was divergence of opinion on the vexed question of scheduled processes. When the Clean Air Bill was introduced by the Government after some effective campaigning by Gerald Nabarro, M.P., the Divisional Council examined the proposals closely and reached the conclusions mentioned earlier in this Report.

A Committee of the Divisional Council met on two occasions to deal with matters referred for special consideration including review of the constitution of the Council with particular regard to the representation of associated organisations.

The meeting at Blackburn was combined with a tour arranged by the North Western Electricity Board to see particularly interesting examples of the efficient use of electricity for heating suites of offices and public buildings using different methods.

Annual General Meetings do not attract large attendances despite special features which are arranged and the introduction of a topical talk this year on "Atmospheric pollution from Road Vehicles" by Dr. A. Fitton of the Fuel Research Station, did not bring the anticipated response. Nevertheless those who heard the address were well rewarded for their attendance.

A meeting with the North Western Section of the Institute of Fuel was held in Liverpool where the standard of lecture maintained the traditional high level. Mr. J. S. Hales gave an absorbing discourse on some problems encountered in Domestic Heating.

It is with regret that we have to record the death of Alderman T. M. Larrad in December. He had been actively interested in smoke abatement for many years and had been a member of the Divisional Council since its formation and he also served for a number of years on the National Executive Council.

H. MOORE, *Hon. Secretary.*

NORTH EAST DIVISION

No meeting of the North East Divisional Council was held during the year ending 31st December, 1955. Developments were awaited, first, on the Private Member's Bill, subsequently withdrawn, and later on the Clean Air Bill promoted by the Government, and because of the continued imposition of one meeting per year, imposed on this Division only, it was considered advisable to arrange the meeting early in 1956.

The Hon. Officers met the District Auditor, shortly after his appointment to this Area, to discuss with him the subject of meetings, having regard to the importance of Smoke Abatement, the Clean Air Bill, and the need for uniform action by all Local Authorities in this vital matter. The District Auditor is of opinion that, short of amendment to the Law, no change in our position appears possible.

GEO. W. TATE, *Hon. Secretary.*

YORKSHIRE DIVISION

The past year has been a very busy one for the Yorkshire Divisional Council, five Council meetings being held in addition to the Annual General Meeting. The attendance at all meetings has been well up to the average. Calls upon members for talks, lectures and articles on the various aspects of air pollution have greatly increased due to the public becoming more " smoke conscious " and with the advent of the " Clean Air Bill."

The first meeting of the year was held at Sheffield University on 10th January and was for elected members only. In addition to co-opting fourteen organizations to the Divisional Council a discussion was held on the " Beaver Report." Members were addressed by Professor M. W. Thring on the work being done by the Department of Fuel Technology at the University of Sheffield; some of this work was demonstrated to the Council.

Our next meeting was held at the Guildhall, York, on 28th March. Mr. N. Hancock, Chief Sanitary Inspector of York and a member of the Divisional Council, commented on the Report of the Committee on Air Pollution with special reference to railway smoke. This was followed by a talk by Mr. R. I. Spencer of British Railways on the Railway Development Plan. A visit was paid to the Motive Power Depot and the Carriage and Wagon Works of British Railways in York.

The third meeting was held at Kingston-upon-Hull on 8th June where after a meeting in the Guildhall, the Council, accompanied by the Lord Mayor and Lady Mayoress, visited S.S. *Cicero*, one of the latest additions to the fleet of Ellerman's Wilson Line.

Skelton Grange Power Station, Leeds, was the venue of the next meeting on 10th October. After the meeting and discussion, Mr. H. E. Vickers, Generation Engineer (Operation) of the C.E.A., explained in detail the operation of the Power Station from the intake of coal to the output of power, illustrating some of his points with working models. After lunch the Council were conducted round the Power Station.

The last meeting of the year was held in Leeds on the morning of 21st November so as to precede the Annual General Meeting; the programme for the next session being the topic of discussion.

The Ninth Annual General Meeting of the Yorkshire Division was held in Leeds on 21st November when the attendance was 40. After the usual business matters the delegates were addressed by Professor M. W. Thring of Sheffield University on " Methods of Burning Fuel Smokelessly " which was followed by a very lively discussion.

Mr. James Law, Chairman of the Yorkshire Divisional Council for the past two years, has resigned from this office. During these two years Mr. Law's experience and advice has been of great value in guiding the Divisional Council. The newly elected Chairman of the Yorkshire Divisional Council is Mr. A. C. Saword, of Hull. Mr. E. J. Winfield of Castleford was elected as Deputy Chairman.

JAMES GOODFELLOW,
Hon. Secretary.

WEST MIDLANDS DIVISION

The past year has been particularly notable for the continued expansion of our business activities. Membership has increased by the addition of two local authority members and two industrial firms, (as corporate members). Thus the financial benefits which the Society gains from this new membership source puts the Division on a self-supporting basis.

During the year the Management Committee, under the Chairmanship of Mr. Councillor E. B. Gibbons, of Brierley Hill, have continued their policy of widening interest in all matters relating to the Society's aims and ideals.

The Annual General Meeting in April was well attended. During the morning a visit to the Glass Works of Messrs. Stevens and Williams Ltd., of Brierley Hill, Staffordshire, proved an outstanding success. No mass production here, and it was the individual craftsmanship which held the members enthralled, ably supported by the descriptive details given by the Work's Director on the work which his Company had carried out on the conversion of the glass furnaces to smokeless conditions. The afternoon was set aside for the business meeting of the Division, and topical papers were read on the appli-

cation of Electricity and Gas to the Glass Industry by Mr. C. Nield, Midlands Electricity Board, and Mr. H. R. Hems, Midlands Gas Board.

During November, the Divisional Members acted as hosts to members of the Institute of Fuel (Midland Section) and the members of the Smethwick and Willenhall Advisory Councils for Smoke Abatement. After a tea buffet, and with a record attendance for an evening meeting, the members present were addressed by Mr. R. Williams, O.B.E., Chief Sanitary Inspector of Coventry, on " The Work Entailed Regarding Smokeless Zones."

The Division was also represented during late November at a meeting of the Institute of Fuel (Midland Section) when the members were addressed by Mr. G. Nonhebel, on the proposals in the Clean Air Bill.

The Management Committee are satisfied that their policy of widening interests has been the correct one, for not only has it helped to increase the goodwill which already exists between the Management Committee and its members throughout the Division, but what is even more important, it has enabled us to play our part, however small, in the national effort of the Society to formulate a public opinion towards attaining Clean Air. Press publicity of the Divisional activities has continued to be gratifying, a slogan for the Division being " if it's in the press it's progress."

All the meetings held by the Management Committee have at some stage or other caused discussions to turn on the proposals of the Clean Air Bill, and we await the legislation with interest, and the knowledge that all concerned will have more responsibility and a greater and interesting field of activity to endeavour to attain, or set in motion, efforts towards the objects of the national legislation.

G. W. FARQUHARSON,
Hon. Secretary.

EAST MIDLANDS DIVISION

The year 1955 was noteworthy in that the Clean Air Bill was presented to Parliament and there were clear indications that the importance of clean air was increasingly recognized by the public. The many inquiries by interested individuals and organizations for information and advice reflected progress in the Society's influence in the East Midlands.

The Divisional Council had the pleasure of congratulating a large industrial concern in the East Midlands on the installation of plant—the first of its kind in the country—capable of recovering 80 per cent. of the sulphur content of coke oven gas and yielding for use in other industries, large quantities of sulphuric acid. The reduction of atmospheric pollution by the new plant, apart from the recovery of valuable materials, is an example which might be followed by others.

Five meetings were held:

Mansfield, 13*th January*, 1955: A discussion on the Report of the Committee on Air Pollution was introduced by Mr. H. N. Eardley, Chief Sanitary Inspector of Mansfield. The Mayor (Alderman J. B. Jenkins) and the Town Clerk (Mr. A. C. Shepherd) attended and accorded a civic welcome to the delegates.

Bolsover, 31*st March*, 1955: Members visited the " Coalite " works and were received by the Managing Director (Mr. F. L. Waring) and other officials of the firm. The Chairman of the Urban District Council (Councillor J. W. Savage) gave an address of welcome.

Scunthorpe, 19*th May*, 1955: Delegates toured the works of the Appleby-Frodingham Steel Company by invitation of the Directors. The Mayor (Councillor C. Newlove) extended a civic welcome and Mr. Neil H. Turner, F.INST.F., gave an address—" Air Pollution in Relation to the Manufacture of Iron and Steel."

Stanton, 7*th July*, 1955: Annual General Meeting held at the works by invitation of The Stanton Ironworks Co. Ltd. The meeting was addressed by Sir Frederick Scopes (Managing Director) who declared his great interest in the work and objects of the Society. The Lord Mayor of Leicester (Alderman S. Cooper) was appointed Chairman of the Division for the year 1955-56 and Councillor J. E. Swain was appointed Deputy Chairman.

Leicester, 3*rd November*, 1955: Mr. G. A. Hiller, F.R.SAN.I., A.M.I.S.E., Chief Sanitary Inspector, Leicester, presented a paper on the Clean Air Bill. The Chairman of the Division and Lord Mayor of Leicester (Alderman S. Cooper) gave a civic welcome to the delegates.

A. WADE, *Hon. Secretary.*

SOUTH EAST DIVISION

At the Society's Annual Conference at Bournemouth during the session devoted to " Local Authorities—The Beaver Report and the Government's Clean Air Bill," the Chairman of the Division, Alderman C. H. Smith, O.B.E., D.L., gave the contribution as an elected representative of a local authority.

In the course of the year two General Meetings of the Division have been held—one in the Metropolitan Borough of Southwark and the other in the City of Oxford.

At the first meeting in the Apprentices' School Lecture Hall at Bankside, Mr. W. Wilde, Chief Generation Engineer (Operational), of the Central Electricity Board gave a short talk on the measures generally being taken by the Board, which would have the effect of some abatement of atmospheric pollution, and in particular the installation at this station of the sulphur elimination plant. The members and representatives were conducted over the station by Mr. Topley, the Station Superintendent.

The Oxford Meeting was addressed by Dr. A. R. Meetham, of the National Physical Laboratory, and Mr. A. G. Ludgater, Manager of the Solid Smokeless Fuels Federation. Dr. Meetham's topic was " Sulphur Compounds in the Air " and was particularly apt bearing in mind the enormous damage to the fabric of many old and treasured buildings in Oxford. Mr. Ludgater, whose topic was " Availability and Distribution of Solid Smokeless Fuels " said that in recent months there had been a substantial increase in supplies of smokeless hard coke, but it would take time to make available supplies of small quantities at household level.

After the meeting the party proceeded to the Nuffield Organization's premises at Cowley and viewed the work of car assembly in progress, seeing in detail the special plant for the paint spraying of cars, constructed so to operate efficiently and without nuisance from fumes or deposits.

In addition to these General Meetings, two visits were also made by members of the Division to the Refinery of the Shell Refining and Marketing Co. at Shellhaven. Also, following an invitation from Ald. Russell at the Society's conference at Bournemouth, a visit was paid to the Pimlico District Heating Undertaking in the City of Westminster. After viewing the control room, pump room, heat accumulator, calorifiers, and an occupied flat on the estate, where was demonstrated the advantages of District Heating, the President of the Parent Society, Sir Ernest Smith, C.B.E., in a few well-chosen remarks, complimented the City Council on their enterprise, and on the satisfaction they must feel that their consideration and effort has resulted in a very high standard of housing for so large a number of people within their area.

The Council have met on three occasions during the year and deliberated as necessary on the " Beaver Report and the Government's Clean Air Bill " and made observations as called for to the Parent Society, in addition to consideration of the general activities in the Division.

Membership is growing and it is hoped that the programme for the ensuing year will be supported and appreciated.

J. J. MATTHEWS,
Hon. Secretary.

SOUTH WALES DIVISION

The newly-formed Division has been concerned with its organization and adoption of a constitution, and with the election of a Divisional Council. A draft constitution was submitted and approved at a meeting held in Cardiff on 23rd March. After the business meeting, with the co-operation of the Wales Gas Board, the film " Guilty Chimneys " was shown.

The Annual Meeting was held in Cardiff on 8th December, and was attended by Mr. F. J. Redstone, Chairman of the national Executive Council, who was cordially welcomed by the Divisional Chairman, Alderman Dr. C. A. Bence. The results of the 1955 elections were declared and the Officers and Executive for 1956 were elected. A report was

submitted on the Annual Meeting and Conference of the Society at Bournemouth, and a Progress Report on action in relation to the Clean Air Bill was given. A meeting of the newly-formed Divisional Executive followed. It was resolved to form a sub-committee to arrange a programme of activities, and suggestions made by Mr. Redstone were greatly appreciated. The Executive were of the opinion that an effort should be made to increase the membership, both of Corporate and Local Authority members, and that the appeal should come direct from headquarters.

EVAN THOMAS,
Hon. Secretary.

AFFILIATED LOCAL AUTHORITIES

As at 9th February, 1956

(Associates in *Italics*)

Scottish Division

Aberdeen, Airdrie, Ardrossan, *Ayr C.C.*, *Ayr*, Barrhead, Clackmannan C.C., Clydebank, Coatbridge, Dumbarton, Dunbarton C.C., Dundee, Dunfermline, Edinburgh, Falkirk, Glasgow, Grangemouth, Greenock, Hamilton, Hawick, Inverness C.C., Inverness, Irvine, Johnstone, Kilmarnock, Kilsyth, Kirkcaldy, Kirkintilloch, Lanark C.C., Loanhead, Motherwell and Wishaw, Musselburgh, Paisley, Perth, *Port Glasgow*, Renfrew C.C., Renfrew, Rothesay, Rutherglen, Stirling C.C., Stirling, *West Lothian C.C.*

Northern Ireland Division

Belfast, Castlereagh.

North West Division

Abram, Accrington, Ashton-under-Lyne, Atherton, Audenshaw, Bacup, Barrow-in-Furness, *Birkenhead*, Blackburn, Blackpool, Bolton, Bootle, Bredbury and Romiley, Brierfield, Burnley, Burnley R.D.C., Bury, Buxton, Chadderton, Cheadle and Gatley, Cheshire C.C., Church, Clitheroe, Colne, Crewe, Crompton, Crosby, Cumberland C.C., Darwen, Denton, Droylsden, Eccles, Ellesmere Port, Failsworth, Farnworth, Fleetwood, Fulwood, Glossop, Golborne, Great Harwood, Hale, Haydock, Hazel Grove and Bramhall, Heywood, Horwich, Hoylake, Huyton-with-Roby, Hyde, Irlam, Kearsley, Lancashire C.C., Lancaster, Leigh, Leyland, Littleborough, Liverpool, Longdendale, Macclesfield, Manchester, Marple, Middleton, Middlewich, Nelson, Newton-le-Willows, Northwich, Oldham, Ormskirk, Padiham, Preston, Preston R.D.C., Radcliffe, Rawtenstall, Rhyl, *Rishton*, Rochdale, Royton, St. Helens, Sale, Salford, Sandbach, *Southport*, Stalybridge, Stockport, Stretford, Swinton and Pendlebury, *Thornton Cleveleys*, Urmston, Wallasey, Wal on-le-Dale, Warrington, *Warrington R.D.C.*, Whiston, Widnes, Wigan, Workington, Wrexham, Wrexham R.D.C.

North East Division

Ashington, Barnard Castle, Bedlingtonshire, Billingham, Bishop Auckland, Blaydon, Brandon and Byshottles, Castle Ward, Chester-le-Street R.D.C., Chester-le-Street U.D.C., Consett, Crook and Willington U.D.C., Darlington, Durham, Eston, Felling, Gateshead, Gosforth, Hartlepool, Hebburn, Hetton, Houghton-le-Spring, Jarrow, Lanchester, Longbenton, Middlesbrough, Newburn, Newcastle-upon-Tyne, Northumberland C.C., Prudhoe, Redcar, Ryton, Saltburn and Marske-by-the-Sea, Seaham, Sedgefield, Skelton and Brotton, South Shields, Stanley, Stockton-on-Tees, Sunderland, Thornaby-on-Tees, Wallsend, Washington, West Hartlepool, Whickham.

Yorkshire Division

Adwick-le-Street, Aireborough, Batley, Bentley-with-Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisbrough, Darton, Dearne, Denby Dale, Dewsbury, Dodworth, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth R.D.C., Hemsworth U.D.C., Hepton, Holmfirth, Horbury, Horsforth, Huddersfield, Hull,

Keighley, Leeds, Meltham, Mexborough, Mirfield, Morley, North Riding C.C., Ossett, Otley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rothwell, Royston, *Scarborough*, Sheffield, Rotherham and District Smoke Abatement Committee, Shipley, Spenborough, Stanley, Stocksbridge, Swinton, Wakefield, Wakefield R.D.C., Wath-upon-Dearne, Wombwell, Worsborough, Wortley, *York*.

West Midlands Division

Bilston, Birmingham, Brierley Hill, Brownhills, Burton-on-Trent, Cannock, Coventry, Darlaston, Dudley, Halesowen, Kidderminster, Leamington Spa, Meriden, Newcastle-under-Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby, Rugeley, Sedgley, Smethwick, Stafford, Staffordshire C.C. (Corporate), Stoke-on-Trent, Stone, Sutton Coldfield, Tipton, Walsall, Warwickshire C.C., Wednesbury, Wednesfield, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Alfreton, Basford, Beeston and Stapleford, Belper, Blackwell, Bolsover, Boston, *Cambridge*, Chesterfield, Chesterfield R.D.C., Clay Cross, Clowne, Coalville, Corby, Derby, Derbyshire C.C. (Cty. Planning Committee—Corporate), *Dronfield*, Eastwood, Gainsborough, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall, Ilkeston, Ipswich, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Northamptonshire C.C., Nottingham, *Nottinghamshire C.C.*, Old Fletton U.D.C., Peterborough, Ripley, Rushden, Scunthorpe, Southwell, Staveley, Sutton-in-Ashfield, Swadlincote, West Bridgford, Wigston, Worksop, Worksop R.D.C.

South West Division

Bath, Bristol, Cheltenham, Gloucester, Ilfracombe, Kingswood, *Poole*, Portishead, Sodbury, Swindon, Thornbury, Trowbridge, *Weston-super-Mare*.

South East Division

Acton, Andover, Aylesbury, Banbury, Barking, Barnes, Basildon, Battersea, Bedfordshire C.C., Bermondsey, Bexley, *Bournemouth*, Brentford and Chiswick, Brighton, Bromley, Camberwell, *Carshalton*, Chatham, Chelsea, Cheshunt, Chigwell, Chislehurst and Sidcup, Clacton, Coulsdon and Purley, Crayford, *Croydon*, *Dagenham*, Dartford, Dartford R.D.C., Deptford, Dover, Dunstable, Ealing, East Ham, Eastleigh, Edmonton, Elstree, Epping and Ongar, Erith, *Farnborough*, Feltham, Finchley, Finsbury, Friern Barnett, Fulham, *Gosport*, Gravesend, *Greenwich*, Guildford, Hackney, Hammersmith, Hampstead, Harrow, Hastings, Havant and Waterloo, Hayes and Harlington, Hemel Hempstead, *Heston and Isleworth*, High Wycombe, Hitchin, Hoddesdon, Holborn, Hornchurch, Horsham, Hove, Ilford, *Kensington*, Kingston-on-Thames, Lambeth, *Lewisham*, *Leyton*, *Littlehampton*, London, City of, London C.C., *Luton*, Malden and Coombe, Merton and Morden, *Mitcham*, New Forest, Northfleet, Orpington, Oxford, Paddington, Penge, *Portsmouth*, *Reading*, *Reigate*, Rochester, Romford, St. Albans, St. Marylebone, *St. Pancras*, Shoreditch, Shoreham-by-Sea, Sittingbourne and Milton, Slough, Southall, *Southampton*, *Southend-on-Sea*, Southgate, Southwark, Southwick, Staines, Stepney, Stevenage, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Uxbridge, Walthamstow, Wanstead and Woodford, Watford, Watford R.D.C., Wembley, *West Ham*, Westminster, Willesden, Wimbledon, *Windsor*, Windsor R.D.C., *Wood Green*, Woolwich, Yiewsley and West Drayton.

South Wales and Monmouthshire Division

Abercarn, Aberdare, Abertillery, Barry, Bedwas and Machen, Bedwellty, Bridgend, Caerphilly, Cardiff, Cardiff R.D.C., Cwmbran, Ebbw Vale, Gellygaer, Glamorgan C.C., Llanelly, Llanelly R.D.C., Llantrisant and Llantwit Fardre, Mountain Ash, Mynyddislwyn, Neath, Newport, Penarth, Pontardawe, Pontypool, Pontypridd, Port Talbot, Rhondda, Risca, Swansea, Tredegar.

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, offices, Executive Council and Committee, etc.

Divisions

For electoral purposes and, where it is desired, area organization, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East, (10) South Wales and Monmouthshire. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are "to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given in next column.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal *Smokeless Air*, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 15s. 0d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations:

Less than 25,000	.. 3	guineas
25,000 to 50,000	.. 4	,,
50,000 to 75,000	.. 5	,,
75,000 to 100,000	.. 7	,,
100,000 to 250,000	.. 12	,,
250,000 to 500,000	.. 18	,,
Over 500,000	.. 30	,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 12 guineas for members appointing two Representatives; not less than 7 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for *Smokeless Air* and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and Local Authority Members a number according to population, as follows:

Less than 100,000	2
100,000 to 250,000	3
250,000 to 500,000	4
500,000 and over	5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Members may obtain, free of charge, advice, assistance, and information on matters relating to atmospheric pollution and its prevention, provided that, where necessary, the request is approved by the Executive Council.

Library

The Society possesses an extensive collection of books, reports and pamphlets, British and foreign, on atmospheric pollution and related subjects, with bound annual volumes of Press cuttings. Copies may be borrowed or consulted by arrangement.

Lectures

The Society will be pleased to help members and others to arrange lectures and talks of all kinds in any part of the country on atmospheric pollution and related subjects.

Lantern Slides and Film Strips

A collection of lantern slides is available and slides may be borrowed at a charge of 3d. per slide per lecture, plus registered postages.

Films

The Society does not at present possess films of its own but issues a comprehensive list of films available from other sources.

Exhibitions

The Society is prepared to consider participating in exhibitions, and has also a supply of material available for loan. Additions are continually being made to this collection and those interested should write for the most recent issue of the descriptive list. Inquiries should be made as early as possible in advance and should give full details of requirements. In view of transport and packing difficulties, material can be loaned more conveniently if it can be collected from and returned to the Society's offices in Palace Chambers by car or van. Carriage costs and a packing fee are charged where material is sent by public transport. No fees are charged to members of the Society for the loan of the material, but a moderate charge (which may be remitted in special cases) is made to non-members. Terms will gladly be sent on request.

Posters

The following posters are available: (1) Set of pictorial and letterpress posters designed for use on ex-E.M.B. frames, but can be used singly. Price 5s. 0d. per set. (2) Prize-winning photo-colour poster 30 in. — 20 in. Price 1s. each. (3) New pictorial chart primarily for school use. " These are the Things that Smoke Does," 30 in. × 20 in. Price 1s. Reduced prices for quantities. Posters may be supplied free of charge in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of the Society's " Guide to Publications " will be found on another page.

Photographs

The Society has a classified and indexed collection of smoke and other photographs, comprising several hundred subjects and suitable for reproduction and/or exhibition purposes. Prints may be inspected or selections sent by post if details of requirements are given. Reproduction fees, where chargeable, are at standard rates.

New photographs of high pictorial quality, with reproduction rights, are required either as gifts or for payment at standard rates.

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1955

Year ended June 30th 1954	INCOME	£	s.	d.	£	s.	d.
6,466	Subscriptions—General				7,139	3	2
1,401	Special Subscriptions for Limited Period				1,598	10	5
634	Sale of Literature				167	19	2
75	Repayment of Income Tax				102	5	10
	£						
	951 Conference Fees	999	12	0			
	767 *Less*—Expenses and Printing	742	4	0			
184	——				257	8	0
38	Sundry Receipts				41	17	1
63	Income from Investments				17	1	5
£8,861					£9,380	5	1

Year ended June 30th 1954	EXPENDITURE	£	s.	d.	£	s.	d.
3,133	Salaries and Fees				3,662	2	9
1,049	Rent, Rates, Gas, Water and Heating				916	18	6
172	Office Supplies and Stationery				190	17	0
47	Travelling Expenses				25	16	3
945	General Expenses, Postage, Telephone and National Insurance				1,191	7	7
305	Divisional Expenses				360	0	0
	£						
	1,385 Printing *Smokeless Air*	1,569	3	2			
	860 *Less*—Receipts from Advertisements	864	11	10			
525	——				704	11	4
717	Printing and Publishing Booklets, etc.				401	10	10
245	Decorating and Dilapidations				–	–	–
255	Staff Pension Scheme				204	19	4
352	Furniture and Fittings				102	19	3
1,116	Excess of Income over Expenditure				1,619	2	3
£8,861					£9,380	5	1

Balance Sheet, June 30th, 1955

£	SURPLUS ACCOUNT	£	s.	d.	£	s.	d.
3,031	Balance as at June 30th, 1954	5,496	13	8			
1,350	*Add*—Legacy F. N. Weightman, Dec'd.	500	0	0			
1,116	Excess of Income over Expenditure for year to date	1,619	2	3			
5,497					7,615	15	11
	CONFERENCE, 1955—BOURNEMOUTH						
	£						
	333 Fees received in advance	317	2	0			
	30 *Less* Printing	32	12	5			
303	——				284	9	7
250	Subscriptions in advance				–	–	–
£6,050					£7,900	5	6

£	INVESTMENTS (at cost)	£	s.	d.	£	s.	d.
	Commercial Union Assurance Co.—						
206	£25 Stock	205	11	0			
	British Transport—						
279	£371 9s. 10d. 3% Guaranteed Stock 1978/88	279	5	11			
864	Post Office Savings Bank	885	10	6			
558	Manchester and Salford Savings Bank	574	0	2			
580	3½% Defence Bonds	580	0	0			
100	Social Service Supplies Ltd.—Loan	100	0	0			
–	Do. One 10s. Share		10	0			
					2,624	17	7
3,453	Cash at Bank and in Hand				5,275	7	11
10	Electricity Deposit				–	–	–
£6,050					£7,900	5	6

Audited and found correct,
ABBOTT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

August 9th, 1955.

NATIONAL SMOKE ABATEMENT SOCIETY

Summary of Divisional Accounts

Division	*Year Ended*	*Commencing Balance*	*Grants*		*Other Income*	*Total*	*Expenditure*	*Closing Balance*
		£ s. d.	£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.
Scotland	31.3.55	290 13 3	100 0 0	(*a*)	86 2 1	476 15 4	(*a*) 170 6 6	306 8 10
North West	31.3.55	116 2 10	65 2 10		—	181 2 10	52 13 7	128 9 3
North East	31.5.54	85 6 4	—		2 3 4	87 9 8	3 10 3	83 19 4
Yorkshire	30.6.54	13 11 5	40 0 0		4 0	53 15 5	36 1 7	17 13 10
West Midlands	30.6.54	7 14 1	60 0 0		—	67 14 1	34 19 6	32 14 7
East Midlands	31.3.54	1 13 8	35 0 0		—	36 13 8	34 2 0	2 11 8
South East	15.7.54	4 19 9	70 0 0		—	74 19 9	60 3 8	14 16 1
South Wales & Mon. ..	30.6.54	—	30 0 0		—	30 0 0	—	30 0 0
Total		520 1 4	400 0 0		88 9 5	1,008 10 9	391 17 2	616 13 7

NOTES

(*a*) Includes fees and expenses for Annual Conference and Firemen's Classes.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a " charity " by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his " general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a " charge " in his return of income for tax purposes, an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name).....*of*.....
(address).....(description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of 30 *Grosvenor Place in the City of Westminster, that for a period of seven years from the first day of*....., 195....., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of.....195.....

Signed, sealed and delivered by the said
.....*in the presence of*
Signature (witness) .....
Address .....
Occupation .....

(Signature).....

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1955

-* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation	5	5	0
Airdrie Corporation	4	4	0
Ardrossan Corporation	3	3	0
Ayr County Council (1954)	5	0	0
(1955)	5	0	0
Ayr Corporation	3	3	0
Barrhead Corporation	3	3	0
Central Electricity Authority—			
Sth. East Scotland Division	12	12	0
Sth. West Scotland Division	12	12	0
Clackmannan County Council	4	4	0
Clydebank Corporation	6	6	0
Coatbridge Corporation	4	4	0
Currie, T. S.		15	0
Davies, P. M.		15	0
Dumbarton Corporation	3	3	0
Dunbarton County Council (1954)	12	12	0
(1955)	12	12	0
Dundee Corporation	12	12	0
Dunfermline Corporation	4	4	0
East Kilbride Development Corporation	7	7	0
Edinburgh Corporation	21	0	0
Edward, J.	1	1	0
Falconer, Mrs. J.		15	0
Falkirk Corporation	4	4	0
Glasgow Corporation	30	0	0
Glasgow Tree Lovers' Society	1	1	0
Glasgow Women Citizens' Association	1	1	0
Grangemouth Corporation	3	3	0
Grattidge, H. H.	1	0	0
Greenock Corporation	7	7	0
Hamilton Corporation	4	4	0
Hawick Corporation	3	3	0
Heriot-Watt College	1	1	0
Howden, James & Co. Ltd.	12	12	0
*Hughes, H. S.	1	1	0
Inverness County Council	5	5	0
Inverness Corporation	4	4	0
Irvine Corporation	3	3	0
Johnstone Corporation	3	3	0
Jones, Samuel & Co. Ltd.	5	5	0
Kilmarnock Corporation	4	4	0
Kilsyth Corporation	3	3	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	3	3	0
Lanark County Council	21	0	0
Loanhead Corporation	3	3	0
Martin, D. M.		15	0
Motherwell & Wishaw Corporation	5	5	0
Musselburgh Corporation	3	3	0
Orr, J. M. R.	1	1	0
O'Sullivan, Mrs. B.		15	0
Paisley Corporation	7	7	0
Perth Corporation	4	4	0
Port Glasgow Corporation	2	2	0
Ramsay, Sir James Douglas (1954)	1	1	0
(1955)	1	1	0
Renfrew Corporation	3	3	0
*Ritchie, A. W.	1	0	0
Ritchie, G. B.		15	0
Roberton, Bailie V.	1	1	0
Rothesay Corporation	3	3	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Associations	2	2	0
Scott Park, Dr. and Mrs. S. D.	1	1	0
Smith, Mrs. Brownhill	1	1	0
South East Scotland Electricity Board	12	12	0
South West Scotland Electricity Board	12	12	0
Stirling County Council	15	15	0
Stirling Corporation	4	4	0
Waldie, J. & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		15	0

Northern Ireland Division

	£	s.	d.
Belfast Corporation	5	5	0
Edwards, Dr. M. D.		15	0
Lynas, K. H.	1	0	0
Ormeau Bakery Ltd.	7	7	0
Young, Miss A. C.	1	1	0

North West Division

	£	s.	d.
Abram U.D.C.	3	3	0
Accrington Corporation	4	4	0
Acklam, R. B.		15	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.	1	0	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Ashton Bros. & Co. Ltd.	2	2	0
Ashton-under-Lyne Corporation	5	5	0
Atherton U.D.C.	3	3	0
Audenshaw U.D.C.	3	3	0
Bacup Corporation	3	3	0
Barrow-in-Furness Corporation	5	5	0
Baxendale & Co. Ltd.	2	2	0
Bayes, Cllr. Mrs. M.	3	3	0
*Beard, E.	2	2	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	12	12	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	12	12	0
Blackpool Corporation	12	12	0
Bloom, J.		15	0
Bock, Dr. J. H.		15	0
Bolton Corporation	12	12	0
Bootle Corporation	6	6	0
Bredbury & Romiley U.D.C.	3	3	0
Brierfield U.D.C.	3	3	0
British Insulated Callender's Cables Ltd.	7	7	0
Bulcock, K.	1	0	0
Burnley Corporation	7	7	0
Burnley R.D.C.	4	4	0
Bury Corporation	5	5	0
Buxton Corporation	3	3	0
Cass, H. V.	1	1	0
Central Electricity Authority—			
Merseyside and N. Wales Division	12	12	0
North Western Division	12	12	0
Chadderton U.D.C.	4	4	0
Cheadle & Gatley U.D.C.	4	4	0
Chennell, J.		10	6
Cheshire County Council	31	10	0
Church U.D.C.	3	3	0
Clitheroe Corporation	3	3	0
Cooper, Miss I.	1	1	0
Coulthard, Dr. and Miss D.		10	0
Craven, W. D. C.	2	2	0
Crewe Corporation	5	5	0
Crompton U.D.C. (1954)	3	3	0
(1955)	3	3	0
Crosby Corporation	5	5	0
Cumberland County Council	12	12	0

	£	s.	d.
Darwen Corporation	4	4	0
Davies, D. E.		15	0
Droylsden U.D.C.	4	4	0
*Duguid, S. N.	3	3	0
Duguid, Mrs. S. N.	1	1	0
Eccles Corporation	4	4	0
Ellesmere Port U.D.C.	4	4	0
Failsworth U.D.C.	3	3	0
Farnworth Corporation	4	4	0
Fildes, Mrs. A.		15	0
Fleetwood Corporation	4	4	0
*Forrester, R. E.	1	0	0
Franklin, N. J.		15	0
Fulwood U.D.C.	3	3	0
Gandy, Mrs. L. M.	1	1	0
*Gavaghan, Mrs. L. A.	1	1	0
Glossop Corporation	3	3	0
Golborne U.D.C.	3	3	0
Great Harwood U.D.C.	3	3	0
Griffel, Dr. W.		10	6
Griffiths, Miss E. M.	1	0	0
Hale U.D.C.	3	3	0
Hall, E. N.		15	0
Hall & Pickles Ltd.	12	12	0
Hancock, A.	1	1	0
Haydock U.D.C.	3	3	0
*Hayhurst, Mr. H. and Mrs. L.	1	1	0
Hazel Grove & Bramhall U.D.C.	3	3	0
*Herbert, J. L.		10	6
Hetherington, H.	1	0	0
Heywood Corporation	4	4	0
Hope, S.	1	1	0
Horwich U.D.C.	3	3	0
Howarth, R. W.	1	1	0
Hoylake U.D.C.	4	4	0
*Hughes, W. R.	1	1	0
Huyton-with-Roby U.D.C.	5	5	0
Hyde Corporation	4	4	0
Hyde, F.	1	1	0
Irlam U.D.C.	3	3	0
Jackson, C. L.	1	1	0
Jewsbury, S.		15	0
Johnston, S.		5	0
Jones, P. G. (1954)		15	0
(1955)		15	0
Kay, W.		15	0
*Keddie, Dr. J. T. Chalmers		15	0
Kearsley U.D.C.	3	3	0
*Kennedy, W. B.		10	6
*Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	52	10	0
Lancashire & District Coke Distributors' Association	7	7	0
Lancaster Corporation	5	5	0
Lane, Mrs. W.		15	0
Langford, A. S.		10	6
*Lee, Sir Kenneth	1	0	0
Lees, Miss M.	1	1	0
Leigh Corporation	4	4	0
Leyland U.D.C.	3	3	0
Littleborough U.D.C.	3	3	0
Liverpool Corporation	31	10	0
Longdendale U.D.C.	3	3	0
Mains, H. D.	1	1	0
Manchester Commercial Buildings Co. Ltd.	3	3	0
Manchester Corporation	42	0	0
Manchester & District Smoke Abatement Committee	12	12	0
Marple U.D.C.	3	3	0
Mather, L. E.	2	2	0
*Mather, W. L.	1	0	0
Mather & Platt Ltd.	50	0	0
MacWilliam, Dr. H.		15	0
McKellen, N.	1	1	0
*Macnair, A. S.	1	0	0
Melland, Mrs. W.	1	1	0
Merseyside & North Wales Electricity Board	12	12	0
Metropolitan-Vickers Electrical Co. Ltd.	8	8	0
Middleton Corporation	4	4	0
Middlewich U.D.C.	3	3	0
Mitchell, L. A.	1	1	0
Morrison, Dr. J.	2	2	0
Nelson Corporation	4	4	0
Newton-le-Willows U.D.C.	3	3	0
Northern Gas Board—			
Carlisle	1	11	6
Penrith		10	6
Workington	1	11	6
North Western Electricity Board	12	12	0
North Western Gas Board	105	0	0
Openshaw, A.		15	0
Ormskirk U.D.C.	3	3	0
Padiham U.D.C.	3	3	0
Parker, H.	1	0	0
Pike, Miss I. M.	1	1	0
*Polding, W. W.		10	6
Pontefract Bros.	1	1	0
Preston Corporation	12	12	0
Preston R.D.C.	4	4	0
Radcliffe Corporation	4	4	0
Rawtenstall Corporation	4	4	0
Redfern, P.		12	6
Refuge Assurance Co.	12	12	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	3	3	0
Richardson, H. A.		15	0
Rishton U.D.C.	2	2	0
Robey, J. C.		15	0
*Robinson, Alderman J.	1	0	0
Rochdale Corporation	7	7	0
Royton U.D.C.	3	3	0
St. Helens Corporation	13	13	0
Sale Corporation	4	4	0
Salford Corporation	12	12	0
Sandbach U.D.C.	3	3	0
Sandbach, Miss E. A.		10	0
*Scott, Mrs. A. O.	1	0	0
Shamash, E.	4	0	0
Sharp, R.		15	0
Shaw, Mrs. M.		15	0
*Shaw, R. D.		15	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	100	0	0
Simpson & Godlee Ltd.	7	7	0
*Smith, H.	2	2	0
Southport Corporation	1	1	0
Stacey, F. E.	1	1	0
Stalybridge Corporation	3	3	0
Stockport Corporation	12	12	0
Stretford Corporation	5	5	0
Summers, J. & Sons Ltd.	12	12	0
Swale, W. E.		15	0
Swinton & Pendlebury Corporation	4	4	0
Taylor, C. P.		15	0
*Taylor, H. F.		12	6
Taylor, H. N.		10	6
Taylor, Miss M. R.	1	0	0
Thornton Cleveleys U.D.C.	2	2	0
*Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd.	7	7	0
Unsworth, J.	1	1	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation	12	12	0
Warrington Corporation	7	7	0
Warrington R.D.C.	2	2	0
*Wells, Dr. Nesta H.		5	0
Westminster Dredging Co. Ltd.	2	2	0
*West's Gas Improvement Co. Ltd.	28	11	5
Whiston R.D.C.	1	1	0
Widnes Corporation	4	4	0
Wigan Corporation	8	8	0
Williamson, J. G.		15	0
Winder, F.		15	0
*Wood, F. J.		15	0
Woodward, W.	1	1	0
Workington Corporation	4	4	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	5	5	0

North-East Division

	£	s.	d.
*Angus, Col. E. G.	3	3	0
Ashington U.D.C.	4	14	6
Atkinson, E.		15	0
Atkinson, H.		15	0
Bedlingtonshire U.D.C.	4	4	0
Billingham U.D.C.	3	3	0
Blaydon U.D.C.	4	4	0
Brandon & Byshottles U.D.C.	3	3	0
Castle Ward R.D.C.	3	3	0
Cellan-Jones, G.	2	2	0
Central Electricity Authority—North Eastern Division	12	12	0
Chester-le-Street R.D.C.	4	4	0
Chester-le-Street U.D.C.	3	3	0
Consett Iron Co. Ltd.	5	5	0
Consett U.D.C.	4	4	0
Crook & Willington U.D.C.	4	4	0
Darlington Corporation	7	7	0
Dixon, W.	1	0	0
Dorman, Long & Co. Ltd.	7	7	0
Durham R.D.C.	4	4	0
Felling U.D.C.	4	4	0
Fletcher, D. R.		15	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	12	12	0
Gosforth U.D.C.	3	3	0
Green, Miss E.		15	0
Hartlepool Corporation	3	3	0
Hebburn U.D.C.	3	3	0
Hetton U.D.C.	3	3	0
Houghton-le-Spring U.D.C.	4	4	0
Imperial Chemical Industries Ltd. (Billingham Division)	12	12	0
*Isaac, P. C. G.	1	1	0
Jarrow Corporation	4	4	0
Lanchester R.D.C.	3	3	0
Longbenton U.D.C.	4	4	0
Middlesbrough Corporation	12	12	0
Newburn U.D.C.	3	3	0
Newcastle upon Tyne Corporation	21	0	0
Nicol, W. T.		15	0
North Eastern Electricity Board	12	12	0
Northern Gas Board—Blyth	1	1	0
,, Darlington	3	3	0
,, Hexham		10	6
,, Middlesbrough	4	4	0
,, Newcastle/Tyne	21	0	0
,, Stockton/Tees	4	4	0
,, Sunderland	4	4	0
Northumberland County Council	18	18	0
*Palmer, F. E. (1954)	2	2	0
(1955)	2	2	0
Power Gas Corporation	10	10	0
Prudhoe U.D.C.	3	3	0
Redcar Corporation	4	4	0
Ryton U.D.C.	3	3	0
Saltburn & Marske-by-the-Sea U.D.C.	3	3	0
Seaham U.D.C.	6	6	0
Sedgefield R.D.C.	4	4	0
Skelton & Brotton U.D.C.	3	3	0
South Shields Corporation (1954)	12	12	0
(1955)	12	12	0
Stanley (Co. D.) U.D.C.	5	5	0
Stockton-on-Tees Corporation	5	5	0
Sunderland Corporation	12	12	0
Thornaby-on-Tees Corporation	3	3	0
Tweddle, T. A.		15	0
University of Durham—King's College	2	2	0
Wallsend Corporation	5	5	0
Washington U.D.C.	3	3	0
West Hartlepool Corporation	6	6	0
Whickham U.D.C.	3	3	0

Yorkshire Division

	£	s.	d.
Adwick-le-Street U.D.C.	3	3	0
Aireborough U.D.C.	4	4	0
Ambler, T. & Sons	1	1	0
Atkinson, C. A. P.		15	0
*Bacon, N. P.	1	2	4
Batley Corporation	4	4	0
Beaumont, J. W.		15	0
Bentley-with-Arksey U.D.C. (1954)	3	3	0
(1955)	3	3	0
Bingley U.D.C.	3	3	0
Bradford Corporation	21	0	0
Bradford Civic Society	2	2	0
Bray, G. & Co.	12	12	0
Bridlington Corporation (1954)	1	1	0
(1955)	3	3	0
Brighouse Corporation	4	4	0
*Brown, G. L.	2	2	0
Carpenter, V. A.		10	6
Castleford U.D.C.	4	4	0
Central Electricity Authority—Yorkshire Division	12	12	0
Clayton, Son & Co. Ltd.	2	2	0
Clegg, E.		15	0
Coke Oven Managers' Association	5	5	0
Colne Valley U.D.C.	3	3	0
Conisbrough U.D.C.	3	3	0
Darton U.D.C.	3	3	0
Dearne U.D.C.	3	3	0
Denby Dale U.D.C.	3	3	0
Dewsbury Corporation	5	5	0
Dickinson, Miss W.		15	0
Dodworth U.D.C.	3	3	0
Doncaster Corporation	7	7	0
Doncaster R.D.C.	5	5	0
English Steel Corporation Ltd.	7	7	0
Givens, W.		15	0
Graucob, F. Ltd.	4	4	0
Green, E. & Son Ltd.	100	0	0
Halifax Corporation	7	7	0
Hall, J. A.		15	0
Harper, Dr. R.	1	1	0
*Harris, J. (1954)	1	2	0
(1955)	1	2	0
Harrogate Corporation	5	5	0
Hemsworth R.D.C.	5	0	0
Hemsworth U.D.C.	3	3	0
Hepton R.D.C.	3	3	0
Holdsworth, R. Y.	1	0	0
Holmes, W. C. & Co. Ltd.	12	12	0
*Holmes, W. G.	2	10	0
Holmfirth U.D.C.	3	3	0
Horbury U.D.C.	3	3	0
Horsforth U.D.C.	3	3	0
Huddersfield Corporation	12	12	0
Hull Corporation	18	18	0
Hunter, K. D.	1	1	0
Jervis, Mr. J. Johnstone	1	1	0
Keighley Corporation	2	2	0
Law, J.	1	1	0
Leeds Corporation	31	10	0
Lister, H. & Sons Ltd.	2	2	0
Lomas, Mrs. B.		15	0
Lowery, P. A.		15	0
*Marshall, G. C.		10	0
Meltham U.D.C.	3	3	0
Mexborough U.D.C.	3	3	0
Middlebrook, C. J.		15	0
Mirfield U.D.C.	3	3	0
Morley Corporation	4	4	0
Morton, Mrs. D. F.		15	0
North Eastern Gas Board	42	0	0
Nth. Riding of Yorkshire County Council	18	18	0
Ossett Corporation	3	3	0
Otley U.D.C.	3	3	0
Park Gate Iron & Steel Co. Ltd.	12	12	0
Pontefract Corporation	3	3	0
Pudsey Corporation	5	0	0
Queensbury & Shelf U.D.C.	3	3	0
Rawmarsh U.D.C.	3	3	0
Royston U.D.C.	3	3	0
Rothwell U.D.C.	3	3	0
Scarborough Corporation	2	2	0
*Severs, J. S.	2	0	0
Sheffield Council of Churches	2	2	0

	£	s.	d.
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	4	4	0
Spenborough U.D.C.	4	4	0
Skinningrove Iron Co. Ltd.	20	0	0
Stanley (Yorks.) U.D.C.	3	3	0
Steam Storage Co. Ltd.	1	1	0
Stocksbridge U.D.C.	3	3	0
Swinton U.D.C.	3	3	0
United Steel Companies Ltd.	50	0	0
Wakefield Corporation	6	6	0
Wakefield R.D.C.	3	3	0
Ward, A.		15	0
Warwick, H.	1	1	0
West Riding of Yorkshire Regional Smoke Abatement Committee	3	3	0
Wombwell U.D.C.	3	3	0
*Wood, F. T.	1	1	0
Worsborough U.D.C.	3	3	0
Wortley R.D.C.	4	4	0
York Corporation	5	5	0
Yorkshire Electricity Board	12	12	0

West Midlands Division

	£	s.	d.
Best, J. K.		15	0
Bilston Corporation	5	5	0
Birmingham Corporation	31	10	0
Brierley Hill U.D.C.	5	5	0
British Reinforced Concrete Eng. Co. Ltd.	50	0	0
Brownhills U.D.C.	3	3	0
Burton-upon-Trent Corporation	4	4	0
Cannock U.D.C.	4	4	0
Central Electricity Authority—Midlands Division	12	12	0
Coventry Corporation	18	18	0
Danks, E. & Co. (Oldbury) Ltd.	12	12	0
Darlaston U.D.C.	3	3	0
Dickinson, S.		15	0
Dudley Corporation	5	5	0
Gibbons Bros. Ltd.	50	0	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Grimmett, P. H. G.		10	6
G.W.B. Furnaces Ltd.	12	12	0
Halesowen Corporation	4	4	0
Hall, G. R.		15	0
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		15	0
Kay, W. L.		15	0
Kidderminster Corporation	4	4	0
Leamington Spa Corporation	4	4	0
Manger's Salt Works Ltd.	1	1	0
Meriden R.D.C.	4	4	0
Midlands Electricity Board	12	12	0
Midlands Joint Advisory Council for Smoke Abatement	5	5	0
Moore, J.		15	0
Newcastle-under-Lyme Corporation	5	5	0
Nuneaton Corporation	5	5	0
Oldbury Corporation	5	5	0
Pointon, F. T., Jnr.	1	0	0
*Pringle, Dr. E.		15	0
*Pringle, Dr. J. E.	1	1	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	4	4	0
Rugeley U.D.C.	3	3	0
Sedgley U.D.C.	3	3	0
*Simpson, T. S.		15	0
Smethwick Corporation	7	7	0
Stafford Corporation	1	10	0
Staffordshire County Council (1954)	12	12	0
(1955)	12	12	0
Stoke-on-Trent Corporation	18	18	0
Stone R.D.C.	3	3	0
Taylor, Mr. and Mrs. C. B.	2	2	0
Thomas, Dr. G. J.	1	0	0
Tipton Corporation	4	4	0
Wakelin, E. N.	2	2	0
Wall, J. M. Ltd.	1	1	0
Walsall Corporation	12	12	0
Warwickshire County Council	18	18	0
Wednesbury Corporation	4	4	0
Wednesfield U.D.C.	3	3	0
Wellington (Salop) U.D.C.	3	3	0
West Bromwich Corporation	7	7	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	12	12	0
Wright, J.	1	10	0

East Midlands Division

	£	s.	d.
Alfreton U.D.C.	3	3	0
Ballard, W. A.	1	0	0
*Barash, Dr. M.	1	1	0
Basford R.D.C.	4	4	0
Beeston & Stapleford U.D.C.	4	4	0
Belper U.D.C.	3	3	0
Blackwell R.D.C.	4	4	0
Bolsover U.D.C.	3	3	0
Boneham & Turner Ltd.	1	1	0
Boston Corporation	3	3	0
*Brown, J. A.	1	1	0
Cambridge Corporation	1	1	0
Central Electricity Authority—East Midlands Division	12	12	0
Chesterfield Corporation	5	5	0
Chesterfield R.D.C.	7	7	0
Clay Cross U.D.C.	3	3	0
Clowne R.D.C.	3	3	0
Coalite & Chemical Products Ltd. (1954)	147	10	0
(1955)	200	0	0
Coalville U.D.C.	4	4	0
Corby U.D.C.	3	3	0
Dearden, J.		15	0
Derby Corporation	12	12	0
Derbyshire County Council	12	12	0
Dronfield U.D.C.	2	2	0
East Midlands Electricity Board	12	12	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	3	3	0
Feaver, R. J.		15	0
Gainsborough U.D.C.	3	3	0
Gt. Grimsby & District Junior Chamber of Commerce		5	0
Great Yarmouth Corporation	5	5	0
Grimsby Corporation	7	7	0
Gurney, J.	2	2	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	4	4	0
Hucknall U.D.C.	3	3	0
Ilkeston Corporation	4	4	0
Ipswich Corporation	12	12	0
Irthlingborough U.D.C.	3	3	0
Kettering Corporation	4	4	0
King's Lynn Corporation	4	4	0
Kirkby-in-Ashfield U.D.C.	3	3	0
Leicester Corporation	18	18	0
Lewis, Mrs. A. B.	1	0	0
Lincoln Corporation	7	7	0
Long Eaton U.D.C.	4	4	0
Loughborough Corporation	4	4	0
Lowestoft Corporation	4	4	0
Low Temperature Coal Distillers' Association	7	7	0
Mansfield Corporation	5	5	0
Mansfield Woodhouse U.D.C.	4	0	0
Market Harborough U.D.C.	3	3	0
McDonald, J. D.		15	0
McHugh, F. G.		15	0
Northamptonshire County Council	18	18	0
Nottingham Corporation	30	0	0
Nottinghamshire County Council	10	10	0
Orr, J. H.		15	0
Peterborough Corporation	5	5	0
Ripley U.D.C.	3	3	0
Royall, F. A.	1	0	0
Rushden U.D.C.	3	3	0
Scunthorpe Corporation	5	5	0
Smith, F. V. S.	1	1	0
Southwell R.D.C.	4	4	0
Staveley U.D.C.	3	3	0

	£	s.	d.
Stewarts & Lloyds Ltd.	50	0	0
Sutton-in-Ashfield U.D.C.	4	4	0
Swadlincote U.D.C.	3	3	0
*Turner, T. H.	1	0	0
Swinn, B.	1	0	0
West Bridgford U.D.C.	3	3	0
Wigston U.D.C.	3	3	0
Woodcock, F. Huntly	1	5	0
Worksop Corporation	4	4	0
Worksop R.D.C.	3	3	0

South-West Division

		£	s.	d.
Bath Corporation	(1954)	7	7	0
	(1955)	7	7	0
Blampied, F. C.			15	0
*Bradshaw, Miss G.			5	0
Bristol Corporation		18	18	0
Bristol & District Regional Smoke Abatement Council		4	4	0
Buzzacott, J. O.		2	2	0
*Campbell, Dr. A. F.		1	1	0
Cawley, The Lady		1	0	0
Central Electricity Authority—South Western Division		12	12	0
Cheltenham Corporation		5	5	0
Clarke, J. A.		1	5	0
Coulthurst, Mrs. A.			15	0
Fry, Miss A.			15	0
Gloucester Corporation		5	5	0
Ilfracombe U.D.C.		3	3	0
Imperial Tobacco Company (of Great Britain & Ireland) Ltd.		12	12	0
Kingswood U.D.C.		3	3	0
Poole Corporation		2	2	0
Portishead U.D.C.		3	3	0
*Rogers, P.		6	6	0
Seale, Mrs. I. L.			15	0
Shaftesbury, Lady		1	10	6
Sodbury R.D.C.		4	4	0
South Western Electricity Board ..		12	12	0
South Western Gas Board		36	15	0
Swindon Corporation		5	5	0
Thornbury R.D.C.		4	4	0
Tosic, J.			10	0
Weston-super-Mare Corporation ..		2	2	0

South-East Division

		£	s.	d.
Acton Corporation		6	6	0
Acworth, A. W.		1	0	0
Acworth, Miss E. A.		1	1	0
Acworth, Miss W. B.		5	5	0
Airedale, The Rt. Hon. Lord		1	1	0
*Alston, Dr. J. M.		1	1	0
Andover Corporation		3	3	0
Anonymous		200	0	0
Associated Coal & Wharf Companies Ltd.		7	7	0
Associated Lead Manufacturers Ltd. ..		8	8	0
Atkinson, Mrs. M.		1	0	0
Ault, H.		1	1	0
Aylesbury Corporation		3	3	0
Bailey Meters & Controls Ltd. ..		21	0	0
Banbury Corporation		3	3	0
Barber, S. S.	(1954)		15	0
	(1955)		15	0
Barking Corporation		10	10	0
Barnes Corporation		4	4	0
Basildon U.D.C.		4	4	0
Battersea Corporation		12	12	0
Beard, J. R.		1	1	0
Bedfordshire County Council		21	0	0
Bennett, M. J.		1	10	0
Bermondsey Corporation		5	5	0
Bexley Corporation		7	7	0
Binderman, Mrs. A.	(1954)		6	0
	(1955)		6	0
Bligh, Mrs. M. F.	(1954)	1	1	0
	(1955)	1	1	0
*Bond, Miss E. F.			15	0

	£	s.	d.
Boult, Miss O.	2	2	0
Bournemouth Corporation	2	2	0
Boyd, Miss D.		10	6
Brentford & Chiswick Corporation ..	5	5	0
Brentford & Chiswick Labour Party ..		10	6
Brighton Corporation	12	12	0
British Electrical Development Association	125	0	0
British Iron & Steel Federation ..	105	0	0
British Medical Association	12	12	0
British Transport Commission ..	150	0	0
Bromley Corporation	5	5	0
Browne, Dr. D. Warren	1	1	0
Buist, Commander C.	10	10	0
Burke, Dr. S. A.	1	11	6
Cable Makers' Association	12	12	0
Caller, Dr. S.		10	6
Camberwell Corporation	12	12	0
Card, H. T.		15	0
Carshalton U.D.C.	1	1	0
Central Electricity Authority	647	4	0
,, Eastern Division ..	12	12	0
,, London Division ..	12	12	0
,, South-Eastern Division	12	12	0
,, Southern Division ..	12	12	0
Chalk Farm Tenants' and Residents' Association	1	1	0
*Chantler, P.	3	3	0
Charrington, Gardner, Lockett & Co. Ltd.	7	7	0
Chatham Corporation	4	4	0
Chatfield, A. J.		15	0
Chelsea Corporation	5	5	0
Cheshunt U.D.C.	3	3	0
Chigwell U.D.C.	5	5	0
Chislehurst & Sidcup U.D.C.	7	7	0
Chitson, Miss M.		15	0
*Chivers, D. P.		10	0
Clacton U.D.C. (1954)	3	3	0
(1955)	3	3	0
Clark, J. K.		15	0
*Clarke, Dr. R. T. V.	1	10	0
*Clinch, H. G.	1	1	0
Coal Utilisation Council	15	15	0
Crayford U.D.C.	4	4	0
Croydon Corporation	4	4	0
Dagenham Corporation	3	3	0
Dartford Corporation	4	4	0
Dartford R.D.C.	4	4	0
Darwen, J. (1954)	1	1	0
(1955)	1	1	0
Davis, E. T. A.	1	1	0
Deptford Corporation	7	7	0
Dover Corporation	4	4	0
Dunstable Corporation	3	3	0
Ealing Corporation	2	2	0
*East, R. G.	1	0	0
Eastern Gas Board	42	0	0
East Ham Corporation	12	12	0
Eastleigh Corporation	4	4	0
*Eaton, Dr. F. J.	2	0	0
Edmonton Corporation	12	12	0
*Edwards, The Rt. Hon. John ..	1	0	0
Electrical Association for Women ..	12	12	0
Elliott Bros. (London) Ltd.	7	7	0
Elstree R.D.C.	3	3	0
*Elsworthy, J. G.	1	11	6
Epping R.D.C.	3	3	0
Erith Corporation	4	4	0
Esso Petroleum Co. Ltd.	100	0	0
Evans, D. H. & Co. Ltd.	7	7	0
Federation of British Cremation Authorities	2	2	0
Feltham U.D.C.	4	4	0
Finchley Corporation	5	5	0
Finsbury Corporation	5	5	0
Ford Motor Co. Ltd.	12	12	0
*Foss, Mrs. A.		10	6
Fox, J.	1	1	0
Fox, Dr. R. H.		15	0
Franklin, C. Ltd.	2	2	0
Friern Barnet U.D.C.	4	4	0

	£	s.	d.
Fry, Miss A. R.	1	0	0
Fry, Miss M.	1	16	4
*Gamlen, R. E.	1	11	6
*Gandy, Miss R. L.	1	1	0
Gas Council	250	0	0
General Electric Co. Ltd.	12	12	0
*Gillison, Dr. J. A.	1	1	0
Glover & Main Ltd.	50	0	0
Goodchild, C. R.		15	0
Goodeve, Sir C. F.	2	2	0
Grace, Mrs. E.		15	0
Gravesend Corporation	4	4	0
Greenwich Corporation	3	3	0
Greenwood, T. A. S.		15	0
Gresham House Estate Co. Ltd.	7	7	0
Guildford Corporation	4	4	0
Guinness, A. Son & Co. (Park Royal) Ltd.	25	0	0
Gummer, R. H.	1	1	0
Hackney Corporation	12	12	0
Hales, J. S.	2	2	0
*Hall, C. A.	1	5	0
Halsted, V.	1	1	0
*Hampson, G. B.		10	6
Hampstead Corporation (1954)	7	7	0
(1955)	7	7	0
Harrold Leather Mfg. Co. Ltd.	1	1	0
Harrow Corporation	12	12	0
Havant & Waterloo U.D.C.	4	4	0
Hayes & Harlington U.D.C.	5	5	0
Henfrey-Smith, F. C.		15	0
Heston & Isleworth Corporation	7	7	0
Hitchin U.D.C.	3	3	0
Hodgkinson, J. (Salford) Ltd.	7	7	0
Holborn Corporation	3	3	0
Holiday Fellowship Ltd.	2	2	0
Honeywell-Brown Ltd.	7	7	0
Hopthrow, H. E.	1	1	0
Horder, The Rt. Hon. Lord	1	1	0
Hornchurch U.D.C.	12	12	0
Horsham U.D.C.	3	3	0
Hove Corporation	5	5	0
Humphreys & Glasgow Ltd.	50	0	0
Hurseal Ltd.	7	7	0
*Hutton, Dr. K. B.	1	0	0
Hyland, A.	1	0	0
Ideal Boilers & Radiators Ltd.	7	7	0
Ilford Corporation	12	12	0
Institute of Fuel	15	15	0
Institution of Electrical Engineers	12	12	0
International Combustion Ltd.	250	0	0
Jackson, Dr. M. N.	1	1	0
James, B. W.		10	0
Jones, Griffith		15	0
Judd, Budd Ltd.	7	7	0
Kelvin & Hughes Ltd.	5	5	0
Kensington Corporation	3	3	0
*Kettlewell, H. M.	1	1	0
Kingston-on-Thames Corporation	4	4	0
Lambeth Corporation	12	12	0
Lea, C.	1	1	0
Lee, S. A.	1	0	0
*Lessing, Dr. R.	1	1	0
Leveson Gower, Miss V.		10	0
Lewisham Corporation (1954)	5	5	0
Leyton Corporation	3	3	0
Liptak Furnace Arches Ltd.	4	4	0
Lister, B. S.	2	0	0
Littlehampton U.D.C.	1	11	6
London (City), Corporation of	26	5	0
London County Council	31	10	0
London & Home Counties Smoke Abatement Advisory Council	4	4	0
London Trades Council	2	2	0
Luton Corporation	2	2	0
MacDermott, N.		15	0
*McDougall, R. J. R.	2	2	0
*McGhie, A. T. S.		15	0
*McLachlan, T.		10	6
Malden & Coombe Corporation	3	3	0
Marchant, L. W. K.	2	0	0
Marillier, G. H.		5	0
Mathias, Mrs. F. V. L.		15	0
Mathias, J. (1954)	1	1	0
(1955)	1	1	0
Melland, B.	1	10	0
Melvin, C. J. & Co.		10	6
Merton & Morden U.D.C.	5	5	0
Mitcham Corporation	2	2	0
*Munro, Mrs. M. A.	1	1	0
Nabarro, G.	1	1	0
New Forest R.D.C.	4	4	0
No-Nail Boxes Ltd.	2	2	0
Nonhebel, G.	1	1	0
Northfleet U.D.C.	3	3	0
North Thames Gas Board	105	0	0
Ongar R.D.C.	3	3	0
Orpington U.D.C.	5	5	0
Oxford Corporation	10	10	0
Oxford Preservation Trust	1	1	0
Paddington Corporation	5	5	0
Parry, M.		15	0
Penge U.D.C.	4	4	0
Pollard, R. S. W.		15	0
Pollitzer, E.	3	3	0
Portsmouth Corporation	5	5	0
Radiation Ltd.	262	12	0
Radiovisor Parent Ltd.	7	7	0
Reading Corporation	2	2	0
Reed, H. H.	1	1	0
Reigate Corporation	1	1	0
Rhondda, Lady		15	0
Richards, F. B.	105	0	0
Richards, Dr. H.		10	6
*Roberts, J. M.		15	0
*Robinson, Mrs. E.	2	2	0
Rochester Corporation	4	4	0
Romford Corporation	7	7	0
*Roper, Captain R.		10	6
Royal Institute of British Architects	12	12	0
St. Albans Corporation	4	4	0
St. Marylebone Corporation	7	7	0
St. Pancras Corporation	5	5	0
Salmon, S. A.		15	0
Samuel, Viscount and Lady	1	1	0
Sanitary Inspectors' Association	12	12	0
Shaw Scott, G.	1	0	0
Shell-Mex & B.P. Ltd.	105	0	0
Shinnie, Dr. A. J.		15	0
Shoreditch Corporation	4	4	0
Shoreham-by-Sea Corporation	3	3	0
Simon, Professor Sir Francis	1	0	0
Simpson & Cook Ltd.	1	1	0
Sittingbourne & Milton U.D.C.	3	3	0
Slough Corporation	5	5	0
*Smith, D. V. H.	4	4	0
Smith, Sir Ernest	2	2	0
Smith & Wellstood Ltd.	1	1	0
Snowden, H. L.		15	0
Society of British Gas Industries	100	0	0
Solid Smokeless Fuels Federation	52	10	0
Southall Corporation	5	5	0
Southampton Corporation	1	1	0
South Eastern Electricity Board	12	12	0
South Eastern Gas Board	105	0	0
Southend-on-Sea Corporation	2	2	0
Southern Electricity Board	12	12	0
Southern Gas Board	36	15	0
Southgate Corporation	2	2	0
Southwark Corporation	7	7	0
Southwick U.D.C.	3	3	0
Staines U.D.C.	4	4	0
Stansfield, A. F.		15	0
Stepney Corporation	7	7	0
Stevenage U.D.C.	3	3	0
Stoddard, Dr. A.	1	0	0
Stoke Newington Corporation	4	4	0
Sturtevant Engg. Co. Ltd.	2	2	0
Sugg, Wm. & Co. Ltd.	2	2	0
Sutton & Cheam Corporation	7	7	0
Swift, S.	1	1	0
*Taylor, M. Lindsay	1	1	0
Thurrock U.D.C.	7	7	0
Tiranti, A.		5	0

	£	s.	d
Tottenham Corporation	12	12	0
Trianco Ltd.	7	7	0
Turner, Dr. W. C.	1	0	0
Uxbridge U.D.C.	5	5	0
Vaughan-Cowell, Lt. Col. A. (1954) ..	1	1	0
(1955) ..	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
Waddell, A.		15	0
Wadham, Miss D.	1	0	0
Wanstead & Woodford Corporation ..	5	5	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	5	5	0
Watford R.D.C.	4	4	0
*Watkins, D. V.	1	0	0
Wembley Corporation	12	12	0
West Ham Corporation	1	1	0
Westminster City Council	21	0	0
White, Dr. H. D. J.	1	0	0
Wicksteed, J. H.		10	0
Wilkinson, J. R.		15	0
Willesden Corporation	12	12	0
Williams, E. V. H.	1	1	0
Wimbledon Corporation	5	5	0
Windsor Corporation	2	2	0
Windsor R.D.C.	3	3	0
Winkworth, Mrs. D. M.		5	0
Women Citizens' Association		15	0
Women's Advisory Council on Solid Fuel	7	7	0
Women's Gas Federation	12	12	0
Wood Green Corporation	2	2	0
Yiewsley & West Drayton U.D.C. ..	3	3	0
Young, M.		15	0

South Wales and Monmouthshire Division

Abercarn U.D.C.	3	3	0
Aberdare U.D.C.	4	4	0
Abertillery U.D.C.	4	4	0
Barry Corporation	4	4	0
Bedwas & Machen U.D.C.	3	3	0
Bridgend U.D.C.	3	3	0
Caerphilly U.D.C. (1954)	4	4	0
(1955)	4	4	0
Cardiff Corporation	12	12	0
Cardiff R.D.C.	4	4	0
Central Electricity Authority—South Wales Division	12	12	0
Cwmbran U.D.C.	3	3	0
Ebbw Vale U.D.C.	5	5	0
Gellygaer U.D.C.	4	4	0
Glamorgan County Council	31	10	0
Llanelly Corporation	4	4	0
Llanelly R.D.C.	4	4	0
Llantrisant & Llantwit Fardre R.D.C.	4	4	0
Mountain Ash U.D.C.	4	4	0
Mynyddislwyn U.D.C.	3	3	0
Neath Corporation	4	4	0
Newport Corporation	12	12	0
Pedler, T. W.	1	1	0
Penarth U.D.C.	3	3	0
Pontardawe R.D.C.	4	4	0
Pontypool U.D.C.	4	4	0
Pontypridd U.D.C.	4	4	0
Port Talbot Corporation	4	4	0
Rhondda Corporation	12	12	0
Risca U.D.C.	3	3	0
Silburn, Mrs. E.	1	1	0
South Wales Electricity Board ..	12	12	0
Steel Company of Wales Ltd.	50	0	0
Swansea Corporation (1954) ..	9	9	0
(1955) ..	12	12	0
Thomas, R. & Baldwins Ltd.	7	7	0
Tredegar U.D.C.	3	3	0
Wales Gas Board	21	0	0
Wales & Monmouthshire Industrial Estates Ltd.	7	7	0

Overseas Subscriptions

Bacon, A. (Melbourne, Australia) ..	1	0	0
Bonati, F. (Italy)		15	0
Jones, Mrs. M. A. (S. Africa)	2	2	0
Meddows, J. C. (New South Wales) ..	2	2	0
Mills, D. V. (Sydney, Australia) ..	1	1	0
National Council of Women of South Africa (South Africa)	1	1	0
Plamondon, S. R. (Canada)	1	0	0
Reif, A. E. (U.S.A.)	1	1	0
Scott, Howard J. (U.S.A.)	1	1	0
Smythies, R. E. (Barbados)		15	0
Vivian, J. H. & Co. Ltd.	2	2	0
Wurts, T. C. (U.S.A.)	2	0	0
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will this year reach its

100th

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Smoke deposits 300 tons of soot per square mile per annum in many towns. It represents a loss to the nation of 2,500,000 tons of fuel per annum and valuable by-products. It causes damage to vital food crops. It causes serious damage to buildings. It increases fogs, reduces sunshine and is detrimental to health. The damage caused by air pollution is estimated to cost the country upwards of £250,000,000 per annum.

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Modern approved domestic appliances when used with SOLID SMOKELESS FUELS provide the essential heat services for the home with greater efficiency than when used with house coal. This is due to the greater radiant heat and higher combustion efficiencies of the appliances when burning SOLID SMOKELESS FUELS. The use of solid smokeless fuel results in fuel economy, more comfort in the home, and healthier living conditions.

Only these solid fuels are smokeless:

Gas Coke, Hard Coke, "Phurnacite", Anthracite, Welsh Dry Steam Coal, "Coalite", "Rexco".



..... *SMOKELESS ZONES* .....

The essentials of smokeless zones are not only that appliances of high efficiency be installed but that SOLID SMOKELESS FUELS are used in those appliances. The S.S.F.F. maintains a comprehensive Advisory Service which is available to all and welcomes every opportunity of assisting in matters relating to Smokeless Zones and the use of solid smokeless fuels.

"Listen, you stop the smoke from your dirty borough from blowing over my smokeless zone, see."

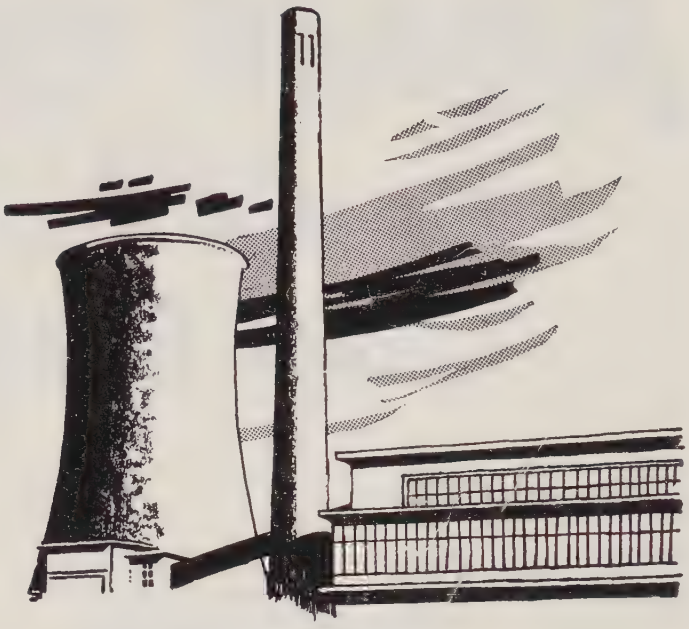
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★ Information and authoritative brochures on domestic heat services with solid smokeless fuels are available on request.

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HEALTHY, WEALTHY and WISE



Air pollution, says the Beaver report, is bad for our health and for our pocket and should be tackled with the same application and energy as were applied a hundred years ago to the securing of a pure water supply.

Simon-Carves Ltd offer a comprehensive service for the design and building of electro-precipitation and cyclone plant for the suppression of pollution and the recovery of valuable minerals. The capital cost of this type of plant can in many cases be quickly off-set by the value of materials recovered. This factor, together with the long life, high efficiency and low running costs of this type of plant explains the growing popularity of electro-precipitation for the prevention of pollution and for mineral recovery processes.

Amongst the applications of electro-precipitation one of the most important is the collection of pulverized fuel flue-dust at power stations. Other industrial applications include the recovery of materials from calcining, roasting and smelting processes in metallurgical industries, the recovery of dust from dryers, grinders, crushers and briquetting plants in mining industries, of gypsum, pyrites dust, acid mist, tar fog, phosphate dust, catalysts, etc., in the chemical, petroleum and fertilizer industries, and of process dust from grinders, linishers, lathes, etc., in miscellaneous industries.

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GENERAL INFORMATION AND REFERENCE SECTION

THE LAW RELATING TO SMOKE, ETC.

At the time of going to press the Clean Air Bill, introduced in 1955, *was being considered in Committee by the House of Commons. The following notes therefore refer only to the legislation then in being and do not relate to the forthcoming Clean Air Act. It is hoped that it will be possible to replace them in the* 1957 *edition of the Year Book with a summary of the main provisions of the new law.*

The general smoke abatement legislation in England and Wales is based on the smoke nuisances sections of the Public Health Act, 1875, modified by the Public Health (Smoke Abatement) Act, 1926, which was incorporated in the consolidating Public Health Act, 1936, and the corresponding Act for London.

Full details of the provisions are given and discussed in the handbook *The Law of Smoke Nuisances*, by W. R. Hornby Steer (published by the N.S.A.S.—see page 49). Briefly, the expression "smoke" includes " soot, ash, grit and gritty particles.' Provisions (s.101) that require a nuisance to be proved or enable a " best practicable means " defence to be used, are rarely invoked, and many local authorities have secured byelaws (s.104) which define a nuisance as the emission of *black* smoke for more than two (or sometimes three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that " interferes with or obstructs " the efficient working of mines or metallurgical processes.

Action may be taken with regard to smoke under common law procedure and can be used to secure both damages and an injunction.

Smoke from shipping is dealt with in the Public Health Act, 1936, and from railways in Acts dating back to 1845 and 1868. A number of English cities have smoke abatement Acts apart from the recent ones mentioned below. In Scotland the Public Health Act of 1897 is similar to the English Act of 1875, and there are also a number of local Acts. In the Scottish legislation the phrase " black smoke " is not used.

The smoke abatement legislation is administered by the local authorities. The Public Health Act, 1936, gives powers for local authorities to combine for the purposes of any of their functions under the Act, but so far the only joint Committee or Board to be set up is that for the authorities for the Sheffield, Rotherham and District.

RECENT LOCAL LEGISLATION

No legislation before 1946 sought to control the conditions leading to smoke emission and was concerned solely with the imposition of penalties after nuisances had occurred. Since that date, however, there have been a number of local Acts embodying a modified form of " prior approval " of fuel-burning installations—a principle widely adopted in other parts of the world. A number of these Acts have also included provisions for the establishment of smokeless zones (a proposal originated and advocated by the N.S.A.S.). Smokeless zones are areas in which all smoke is prohibited, and, although initial zones may be small, the intention is that they should be extended by stages until the whole of a town or district becomes smokeless. The first smokeless zone came into operation in Coventry on 1st March, 1951, and this was followed by one in the central area of Manchester in 1952. The local Acts which include prior approval are as follows: those also including smokeless zone clauses being marked " S.Z.":

Manchester Corporation Act, 1946. *S.Z.*
City of London (Various Powers) Act, 1946
Preston Corporation Act, 1947.
Dudley ,, ,, 1947.
Salford ,, ,, 1947. *S.Z.*
Paisley Corporation Order Confirmation Act, 1947.
Coventry Corporation Act, 1948. *S.Z.*
Darwen ,, ,, 1948.
Birmingham ,, ,, 1948.
St. Helens ,, ,, 1948.
Smethwick ,, ,, 1948.
Rochdale ,, ,, 1948. *S.Z.*
Brighton ,, ,, 1948.
Bradford ,, ,, 1949. *S.Z.*
Bolton ,, ,, 1949. *S.Z.*
Urmston ,, ,, 1949. *S.Z.*
Crewe ,, ,, 1949. *S.Z.*
Slough ,, ,, 1949.
W. Bromwich ,, ,, 1949.
Fife C.C. Order Confirmation Act, 1949.
Leyton Corporation Act, 1950.
Wolverhampton Corporation Act, 1950. *S.Z.*
Kirkcaldy Burgh Extension, etc., Order Confirmation Act, 1950.
Edinburgh Corporation Order Confirmation Act, 1950. *S.Z.*
Worcester Corporation Act 1951.
Sunderland ,, ,, 1951. *S.Z.*
Sutton & Cheam ,, ,, 1951.
Swindon ,, ,, 1951. *S.Z. only.*
Notts. C. Council Act, 1951.
Airdrie Corporation Order Confirmation Act, 1951.

Essex C. Council Act, 1952.
Fareham U.D. Council, 1952.
Kingston-upon-Hull Corporation Act, 1952.
Leamington Corporation Act, 1952.
Nottingham ,, ,, 1952.
Tottenham ,, ,, 1952. *S.Z.*
Preston Corporation Order, 1952. *S.Z. only.*
Greenock Corporation Order Confirmation Act, 1952. *S.Z.*
Cheshire County Council Act, 1953.
Berkshire County Council Act, 1953.
West Bridgford U.D. Council Act, 1953. *S.Z. only.*
Oxford Corporation Act, 1953. *S.Z. only.*
Birkenhead Corporation Act, 1954. *S.Z.*
Coventry ,, ,, 1954.
Derbyshire County Council,, 1954.
Newport Corporation ,, 1954.
Walsall ,, ,, 1954. *S.Z.*
Birmingham ,, ,, 1954. *S.Z. only.*
City of London (Various Powers) Act, 1954. *S.Z. only.*
Nuneaton Corporation Act, 1955.
Liverpool ,, ,, 1955. *S.Z.*
Rutherglen Burgh Order Confirmation Act, 1954.

THE ALKALI, ETC., WORKS REGULATION ACT

The Alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made under the Public Health (Smoke Abatement) Act, 1926 and the Alkali, etc., Works Regulation (Scotland) Act, 1951. Such orders were made in 1928, 1935, 1939 and 1950. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the " best practicable means " for preventing the escape of noxious or offensive gases to the atmosphere and for rendering such gases harmless and inoffensive, (3) the " best practicable means " must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an inspectorate to administer the Act and regulations are included relating to the registration and inspection of works, general procedure, penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the inspectorate. (*See also Directory*).

CITY AND GUILDS OF LONDON INSTITUTE EXAMINATIONS

The Institute's examinations in subjects related to the efficient use of fuel are growing in popularity and also now cover a wider range than hitherto, comprising:

The Boiler Operator's Certificate (Subject No. 75).
Boilerhouse Practice—Intermediate } (Subject
Boilerhouse Practice—Final } No. 76).
Combustion Engineering — Advanced (Subject No. 77).
Steam Utilization Technology—Intermediate } (Subject
Steam Utilization Technology—Final } No. 28).
Steam Utilization Practice (Subject No. 29).
Solid Fuel Production, Distribution and Utilization (Subject No. 188).
Fuel Technology (Subject No. 5).

The Boiler Operator's Certificate, which may be regarded as the " National Certificate " that has been advocated by the N.S.A.S. consists of a written examination of a comparatively simple type and a practical/oral test on a boiler of the kind with which the candidate is familiar.

Subject No. 188 is introduced for the first time in the current session and is intended to provide a national qualification for sales staff employed by solid fuel distributors whose work requires them to advise domestic and industrial customers on the choice of fuels and appliances and to be able to recognise when the services of a fuel technologist, builder or other specialist are required. The examination in Subject No. 5—Fuel Technology, meets the examination requirements for Corporate Membership of the Institute of Fuel. Full particulars of the examination and of technical institutes where courses are held may be obtained from the Department of Technology, City and Guilds of London Institute, Gresham College, Basinghall St., London, E.C.2.

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of the Fuel Research Station includes several main lines of attack:

(i) systematic measurements of pollution by smoke, grit, and sulphur in many parts of the country and development of improved methods of measurement.

(ii) investigation of factors affecting dispersion of pollution, study of nature and distribution of pollution during fog, determination of minor pollutants, and participation in co-operative investigations of damage caused by pollution.

(iii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iv) research work on "processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

(v) researches on the production of coke that will burn more freely than ordinary gas coke and can be used to give a smokeless fire with old-fashioned open-fire grates.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsbile for the collation and the publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December 1955, regular observations of atmospheric pollution were being made by about 220 local authorities and other co-operating bodies, involving the use of nearly 2,000 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution. The 27th report in this series, covering observations during the 10 years ended 31st March 1954, was published by H.M. Stationery Office in December 1955.

Local Authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1955 of a total of some 240 co-operating bodies, over 180 had appointed representatives to serve on this Conference.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. A process which is undergoing investigation in the laboratory and on a pilot-plant scale at the Fuel Research Station, is the Fulham-Simon-Carves Ammonia Process. The progress of this work has led the Central Electricity Authority to install a pilot plant to treat 2 million cubic feet of flue gas an hour at Nottingham generating

station. An important feature of this process is that the sulphur is recovered as saleable products—namely ammonium sulphate and sulphur.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door, which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to 10 per cent. of the fuel, has been developed and is now being manufactured commercially. The same principles have now been applied to forced-draught, hand-fired boilers and a smoke eliminator developed and proved to be as efficient as the natural draught smoke eliminator. Arrangements are being made for its manufacture.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the List of Recommended Domestic Solid Fuel Appliances, published jointly by the Coal Utilization Council and the Solid Smokeless Fuels Federation. This list is circulated for the guidance of local authorities and is available to the general public.

Although the most common solid smokeless fuel—ordinary gas coke—burns well on improved open fires and stoves, it is difficult or impossible to burn it with the old-fashioned open fire still in general use. Tests on the carbonization of weakly-caking coals, not normally used for gas-making have shown that they can yield freely-burning coke that can be used as a smokeless fuel to give a good fire on any type of grate.

THE NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE

The National Industrial Fuel Efficiency Service, which was formed in May, 1954, to take over and expand the industrial fuel efficiency services formerly provided by the Ministry of Fuel and Power is industry's own Fuel Efficiency Service. It offers practical help to firms large or small to eliminate the waste that occurs in the generation of heat and power and in all stages of their application, whatever type of fuel is used.

N.I.F.E.S. provides throughout the country a full Advisory Service by experienced Fuel Engineers. The services offered include a survey which shows the conditions under which the existing plant can be operated at maximum efficiency, a detailed inspection of power and process plant performance or a complete survey that will show where heat is utilized, where waste occurs, and how improvements can be made. Regular Service Contracts that ensure that plants are kept at maximum efficiency can also be arranged. N.I.F.E.S. engineers also work in close liaison with Sanitary Inspectors and can give advice on problems of excessive smoke and grit emission.

N.I.F.E.S. other activities include the publication of advisory pamphlets on Fuel Efficiency and the furthering of all forms of education for boilerhouse operatives and for other personnel engaged in, or directly concerned with, the use of heat and power. To help boiler operators who are unable to attend Technical Colleges, N.I.F.E.S. has a home study course leading to the City and Guilds of London Boiler Operators' Certificate.

N.I.F.E.S. also gives advice on applications for Government Loans to finance fuel-saving schemes. Repayment of loans may be spread over the life of the equipment up to a maximum of twenty years, no interest being charged on loans for the first two years after the equipment has been installed.

All enquiries should be addressed to the appropriate Area Engineer at the address given in the Directory.

THE BEAVER REPORT

The Report is so comprehensive and detailed that a useful and balanced summary is impracticable. For reference, therefore, are quoted only the basic policy statements given in the Introduction, the recommendations, and the main conclusions of the appendix on the economic cost of air pollution.

Para 6: In presenting this Report we wish to state our emphatic belief that air pollution on the scale with which we are familiar in this country today is a social and economic evil which should no longer be tolerated, and that it needs to be combated with the same conviction and energy as were applied one hundred years ago in securing pure water. We are convinced that given the will it can be prevented. To do this will require a national effort and will entail costs and sacrifices; the recommendations made in this Report will involve expenditure by the Government, local authorities, industry and householders alike. But we are confident that our proposals, if carried out, will secure happier and more healthy living conditions for millions of people, and that on all counts the cost of the cure will be far less than the national loss in allowing the evil to continue.

Para 7: We are satisfied that the most serious immediate problem to be tackled is visible pollution by smoke, grit and dust, and we have been able to make definite recommendations in regard to these. We must emphasize that the problem is not one which can be solved overnight. Real improvement can be secured only by a continuous programme urgently and insistently carried out over a number of years. The objective of our recommendations is that by the end of ten to fifteen years the total smoke in all heavily populated areas would be reduced by something of the order of 80 per cent. This would mean a degree of freedom from air pollution which many parts of the country have not known for more than a century. With regard to gaseous pollution, there is not yet the knowledge to deal effectively with the whole problem; but we have made a number of recommendations for preventive action and have indicated the directions in which ultimate solutions may be found.

Para 8: It is basic to all our recommendations that at the outset it should be made the declared national policy to secure clean air, and that a statement to this effect should find expression in the new legislation—the " Clean Air Act "—which we are recommending.

Recommendations—Legislation

(1) Subject to certain exceptions the emission of dark smoke from any chimney should be prohibited by law.

(2) The use of efficient grit and dust arresting plant should be obligatory in the new industrial installations which burn pulverized fuel, or solid fuel in any form at a maximum rate of 10 tons an hour or more. It should be the duty of the owner or occupier of premises on which any such installation, new or existing, is situated, to take measurements of grit emission and to inform the local authority of the results if so required. In other industrial installations fired by solid fuel, all reasonably practicable steps should be taken to prevent the emission of grit and dust.

(3) In the case of certain industrial processes in which the prevention of dark smoke, grit or harmful gases presents special technical difficulties, responsibility for ensuring that the best practicable means of prevention are used at all times should be vested in the Alkali Inspectorate, and the provisions of the Alkali Acts should be extended accordingly.

(4) The provisions now in force under a number of local Acts for regulating the design of new industrial furnaces should be included in general legislation.

(5) The law for the control of smoke from railways, and of pollution from colliery spoilbanks, should be brought up to date and strengthened. Responsibility for enforcement should rest with the local authorities.

(6) Local Authorities should have power under general legislation by means of Orders requiring confirmation by the appropriate Ministers to establish (1) smokeless zones in which the emission of smoke from chimneys would be entirely prohibited; and (2) smoke control areas in which the use of bituminous coal for domestic purposes would be restricted.

(7) Financial assistance should be provided by local authorities and by the Exchequer towards the costs incurred by house owners in converting appliances in smokeless zones and smoke control areas.

(8) Domestic heating appliances installed in all new premises should be of approved types.

(9) The present purchase tax of 50 per cent. on gas and electric room and water heaters should be removed.

(10) Except for the processes referred to in (3) above, responsibility for enforcing the law for the prevention of smoke and grit should be placed as a statutory duty on the local authorities.

(11) Local Authorities should be required to submit annual reports on their progress in smoke abatement to the appropriate Minister.

(12) Penalties for smoke offences should be increased.

Recommendations—Other

(1) The following documents should be prepared and issued by the British Standards Institution:

(*a*) codes of practice indicating the extent to which smoke can be reduced with good practice, and the means of securing such reductions.

(*b*) Standard specifications for smoke indicators, recorders and alarms.

(2) The British Standards Institution should also consider devising simpler standard methods of sampling flue gases to determine grit emissions.

(3) Stoking should be recognized as an operation requiring skill and firemen should be properly trained and remunerated.

(4) The Government Loan Scheme for approved fuel-saving equipment in industry should be extended to include equipment installed for the purpose of reducing air pollution.

(5) Consideration should be given to allowing the whole of the capital cost of new plant and equipment installed to save fuel and to prevent smoke to be charged against revenue for tax purposes in the year in which the expenditure is incurred.

(6) The most efficient practicable methods of removing sulphur from flue gases should be adopted at all new power stations in or near populated areas.

(7) The factor of pollution should be taken into account when future schemes for the electrification of the railways are being considered and the programme of electrification should be accelerated and extended. The changeover from steam to diesel shunting locomotives should be accelerated.

(8) The present law for the control of pollution by motor vehicles should be more rigorously enforced.

(9) The prevention of domestic smoke will require the replacement of bituminous coal now used in domestic premises in the "black areas" by smokeless fuels, and also the provision of new appliances, fitted with easy means of ignition, in which such fuels can be burnt satisfactorily. This should be secured by the progressive extension of smokeless zones and smoke control areas as increased supplies of smokeless fuels are made available.

(10) The British Standards Institution should prepare specifications and methods of testing for coke for household use and for domestic solid fuel appliances.

(11) Clean air should be the declared national policy and it should be recognized both by the Government and the nationalized fuel industries as an essential element in fuel policy in the future.

(12) Local authorities should employ adequate smoke-control staffs with the proper training and technical qualifications.

(13) Arrangements should be made to secure effective co-ordination as between local authorities in the black areas and especially in Greater London.

(14) Development and research work on the many technical problems now outstanding should be undertaken or accelerated.

(15) A "Clean Air Council" should be established to co-ordinate and encourage research work and to review the progress made in implementing any new legislation.

The Cost of Pollution

This Appendix arrives at the following main conclusions:

(1) The direct costs of pollution to which figures can be put ("however hazardous") are as follows:

	£*m. per annum*
Laundry	25
Painting and decorating ..	30
Cleaning and depreciation of buildings other than houses	20
Corrosion of metals	25
Damage to textiles and other goods	52.5
	152.5

It is considered that these figures are under-estimates, and as certain items have been omitted, it is concluded that the direct costs of air pollution are *of the order of at least* £150 *million a year.*

(2) The "loss of efficiency." The following figures are given as "a rough guess at possible orders of magnitude": £10 m. a year loss to agriculture; £55 m.

a year loss of working efficiency in manufacturing industry; £60 m. a year in other sectors, including transport—altogether "the loss of efficiency resulting from pollution might be as great as the direct costs," but to avoid danger of over-estimates a figure of £100 m. a year is suggested.

(3) The value of the fuel lost under the conditions which produce smoke is estimated to be £25 m. to £50 m. a year, but it is considered that this should not be included as one of the costs of pollution.

The total estimated cost is given as £250 m. a year, equivalent to £10 per head in the black areas and £5 elsewhere throughout Great Britain, plus the value of the fuel lost.

ESTIMATES OF POLLUTION

The following table of pollution discharged annually in the U.K. is based on a table of estimates given in the Beaver Report. Figures are in millions of tons, those in brackets being the quantity of fuel burned or carbonized in each class.

	Smoke	*Grit*	*Sulphur Dioxide*
Raw Coal Uses:			
Domestic (36·8)	0·9	0·1	0·9
General Industry (64·6)	0·8	0·8 (*a*)	1·0
Electricity generation (36·7) ..	small	0·3	0·4
Railways (13·8)	0·3	0·1	1·8
Coke Ovens (25·9)	small	small	0·1
Gas Works (27·2)	small	small	0·2
Coke Uses (14·7) (*b*)	nil	small	0·4
Oil Uses (9·0) (*c*)	small	nil	0·4
Totals	2·0	1·3	5·2

(*a*) Including grit from industrial furnaces other than steam raising.
(*b*) Excluding consumption in gasworks and blast furnaces.
(*c*) Including diesel, gas and fuel oils and creosote-pitch mixture.

THE LONDON SMOG, DECEMBER, 1952

The London smoke-fog of 5th to 9th December, 1952, is now recognized as probably the most severe incident of its kind yet experienced in this country or elsewhere. The principal facts may be given in summary form, as follows:

The fog developed on Friday, 5th December and continued until 8th December. It was marked by a period of virtually complete calm and for the low height, 200 to 500 feet, of the temperature inversion, beneath which the fog and pollution was concentrated.

Observations at County Hall showed a rise in average daily smoke concentration (mgm. per c. metre) from 0·49 on 3rd December to 4·46 on 7th and 8th December; and a rise in sulphur dioxide (parts per million) from 0·144 to 1·339. Air filters at the National Gallery became clogged during 24 hours of the fog at the rate of 26 times the normal, and in one period of four hours at a rate of 54 times the normal.

The number of deaths caused by the fog, during the two weeks following it, are given by Dr. Logan (op. cit.) as about 4,000 for Greater London. In the London Administrative County only, during the week following the fog, compared with the previous week, deaths from bronchitis rose from 121 to 872, and from diseases of the heart and circulatory system from 318 to 801. Nearly all age groups were affected, particularly those aged 45 and upwards. Deaths in children under one year were approximately doubled. During the period the deaths in other parts of the country showed no significant change. In the London County area the death rate, per million population, during the week following the fog was exceeded only in 1866 (cholera), 1873 (fog) and 1918 (influenza), but the excess of the rate over the normal for the period and season was greater after the 1952 fog than any occasion other than 1918. The excess over the normal in 1866 was 426; in 1873, 243; in 1918, 785; and in 1952, 445.

Reports of the disaster, to which reference should be made for full details,

include the following listed according to the principal aspects covered:

Medical

Mortality and Morbidity during the London Fog of December, 1952, *Ministry of Health Report.*

Dr. W. P. D. Logan; *Lancet*, 14th February, 1953.

Dr. J. A. Scott, Medical Officer of Health, L.C.C., Health Report, 1953.

Ibid. Glasgow Conf. Proc., N.S.A.S., 1953.

Meteorological—C. K. M. Douglas and Dr. K. A. Stewart, *Meteorological Magazine*, March, 1953.

Air Pollution—Dr. E. T. Wilkins, *J.R. San. Inst.*, 1954, **74**, 1-21.

Dr. A. Parker, *Glasgow Conf. Proc.*, N.S.A.S.

General—Survey of the London Fog, *Smokeless Air*, Spring, 1953 (reprinted in pamphlet form).

A. Marsh, *Glasgow Conf.Proc.*, N.S.A.S.

THE CLEAN AIR CASE

A Synopsis for the Guidance of Speakers, Writers, Teachers, etc.

1. Historical Background. Growth of the air pollution problem and efforts to abate it, from 1273 to the present day. (*See History table.*)

2. Nature, Sources and Causes. Smoke: Due to incomplete combustion; consists of fine carbonaceous particles and tarry droplets. (For quantities produced, *see Table.*) Note that combustible gases escaping when smoke is produced bring the total fuel losses to an equivalent of near 10 million tons of coal a year.

Gases: Sulphur dioxide the most harmful. Also carbon monoxide, and noxious gases and fumes from chemical processes.

Grit and dust: Mainly from industrial sources, e.g., pulverized coal and high-draught furnaces.

3. Extent and Behaviour of Pollution. Measurement of floating and deposited impurities, sulphur dioxide, and of light values. The Investigation under the Fuel Research Station, D.S.I.R. (*q.v.*)

4. Fog. Natural and smoke fogs, their formation and characteristics. The London, 1952 and other lethal smogs.

5. Effects. *Health:* Effects on respiratory system. Effects due to obstruction of natural light. Possible relationship with lung cancer. Psychological and social consequences of life in smoke-ridden environment. Effects of smog are the result of infrequent high concentrations of pollution, whereas the insidious action of "normal" pollution take place continuously.

Plant Life: Principal factors injurious to vegetation are: loss of sunlight, blocking of stomata by deposits, direct attack by chemicals, acidification of soil. Indirect effect on grazing animals through deterioration of herbage, or of poisoning in the case of fluoride pollution.

Materials: Corrosion or erosion of metals, stone, fabrics, leather, etc.

Visibility: Loss of visibility due to smoke haze and smog affecting air and surface transport.

Costs: See information at end of section on the Beaver Report.

6. Prevention. *Industrial Smoke:* calls for correct equipment, maintenance and operation of plant. Value of mechanical stoking. Uses of oil, gas, electricity and smokeless solid fuel. Importance of training and certification of stokers. Instrumentation, smoke alarms, etc. Need for all-round fuel efficiency. *Dust and grit:* Use of arrestors of appropriate types: cyclones, wet washing, electrostatic precipitators. *Sulphur:* removal by coal washing, flue gas-washing and other possible means.

Domestic: By use of smokeless fuels—gas, electricity, oil or solid. Types of solid fuel: gas and hard coke, anthracite, Welsh steam coals, Coalite, Rexco, Phurnacite. Need for efficient appliances. Central and district heating, whole-house warming, off-peak electrical methods, etc. Smokeless zones, including smokeless estates.

Railways and Roads: Use of diesels and electricity for the former. Need for efficient combustion and good maintenance in road vehicles, possible development of catalytic afterburners and other devices.

7. Policy, Law, etc. The present law—Public Health Act, 1936, local Acts (*q.v.*), Road Traffic Act, 1930, Alkali, etc., Works Regulation Act, 1906 and Orders, etc. The Beaver Report and its proposals (*q.v.*). The Clean Air Bill. Responsibilities of local authorities and central Government. Smokeless zones and smoke control areas. Work of the D.S.I.R., Alkali Inspectorate and other organizations. Educational and publicity work of the National Smoke Abatement Society.

THE HISTORY OF AIR POLLUTION IN GREAT BRITAIN

A Chronological Table

1273 Use of coal prohibited in London as being "prejudicial to health."

1306 Royal Proclamation prohibiting artificers from using sea-coal in their furnaces. Record of the execution of one offender.

1307 Commission of Inquiry appointed to "inquire of all such who burnt sea-coal in the city or parts adjoining, and to punish them for the first offence with great fines and ransoms, and upon the second offence to demolish their furnaces."

1578 Queen Elizabeth I "findeth hersealfe greately greved and anoyed with the taste and smoke of the sea-cooles."

1648 Petition of Londoners to Parliament to prohibit the importation of coal from Newcastle on account of the injury they experienced.

1661 John Evelyn submitted his "Fumifugium, or the Smoake of London Dissipated," to Charles II.

1819 Committee appointed by Parliament to inquire how far persons using steam engines and furnaces could erect them in a manner less prejudical to public health and comfort.

1843 A Select Committee recommended the introduction of a Bill dealing with nuisances from furnaces and steam engines.

1845 Another Select Committee reported that it was not desirable to extend the provisions of an Act beyond furnaces used for steam generation.

1847 The Town Improvement Clauses Act contained a section dealing with factory smoke.

1853-6 Smoke abatement Acts relating to the Metropolitan area.

1866 The Sanitary Act empowered sanitary authorities to take action in cases of smoke nuisances.

1875 The Public Health Act containing a smoke abatement section on which legislation to the present day has been based.

1881 Smoke abatement Exhibition at South Kensington organized by the Public Health and Kyrle Societies.

1882 Formation of the National Smoke Abatement Institution.

1891 The Public Health (London) Act.

1899 Formation of the Coal Smoke Abatement Society, led by Sir William Richmond, R.A. and Dr. H. A. Des Voeux. (concerned mainly with London).

1909 Sheffield smoke abatement Exhibition, at which was set up the Smoke Abatement League of Great Britain (mainly for the provinces and centred later in Manchester and Glasgow).

1912 International smoke abatement Exhibition in London, organized by the Coal Smoke Abatement Society, leading to the formation of a Committee for the Investigation of Atmospheric Pollution (now under the auspices of the D.S.I.R.).

1913 Smoke abatement Bill introduced in the House of Commons by A. G. C. Harvey, M.P.

1914 Smoke abatement Bill introduced in the House of Lords by Lord Newton. Withdrawn on the appointment of a Departmental Committee to investigate the problem.

1920 Committee re-formed after the war with Lord Newton as Chairman.

1921 Publication of the Final Report of the Newton Committee.

1926 Public Health (Smoke Abatement) Act by which the 1875 and 1891 Acts were amended and extended.

1927 Establishment of first regional committees of local authorities.

1929 Amalgamation of the Coal Smoke Abatement Society and Smoke Abatement League of Great Britain to form the National Smoke Abatement Society. First publication of a journal (now *Smokeless Air*) devoted to air pollution.

1936 Public Health Act, in which were included the provisions of the smoke abatement Act of 1926.

1946 Simon Report on Domestic Fuel Policy, recommending, *inter alia*, measures for domestic smoke prevention.

1946 First smokeless zone and prior approval legislation (Manchester Corporation Act).

1951 First smokeless zone established (in Coventry).

1952 Ridley Report on "Policy for the Use of Fuel and Power Resources," recommending, *inter alia*, measures for smoke prevention.

1952 London smog disaster, the most serious for many years, with a death roll of 4,000 (*q.v.*)

1953 Beaver Committee on Air Pollution set up by the Government and published an Interim Report.

1954 Final Report of the Beaver Committee.

1954 A Clean Air Bill introduced by Gerald Nabarro M.P., and withdrawn (4th Feb., 1955) on Government undertaking to introduce their own Bill.

1955 Government Clean Air Bill introduced and given unopposed second Reading.

RECENT PAPERS AND REPORTS

A Selected List

AIR POLLUTION, COMMITTEE ON, FINAL REPORT. H.M.S.O. 1954.

AIR POLLUTION FROM ROAD VEHICLES. Dr. A. Fitton. *Smokeless Air*, 1955. **25.** 152.

ALKALI ETC., WORKS REPORT. 1954.

ARCHAIC STEAM LOCOMOTIVE, THE. Prof. G. H. Rawcliffe. *Smokeless Air*. 1955. **25.** 203.

AVAILABILITY AND EFFICIENT USE OF FUEL, THE. K. T. Spencer, C.B.E., M.C. *Smokeless Air*. 1955. **25.** 139.

British Electricity Authority 7th Report and Accounts, 1954-55.

Beaver Report and After. J. L. Burn, M.D., D.Hy., D.P.H. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Chimneys and the Dispersal of Smoke. J. E. Hawkins & G. Nonhebel. *J.Inst.F.* 1955. **28.** 530.

City of Pittsburgh Bureau of Smoke Prevention, 1954 Report.

Clean Air. Sir H. Beaver. (Chadwick Trust Lecture) *Smokeless Air.* 1955. **25.** 145.

Design and Performance of Modern Gas Cleaning Equipment. J. Stairmand. *J.Inst.F.* 1956. **29.** 58.

Discussion on the Beaver Report. *J.Inst.F.* 1955. **28.** 175.

Domestic Fuel for Smokeless Heating. G. E. Foxwell, C.B.E., D.Sc., F.Inst.P., M.Inst.Gas E., M.I.Chem.E. *Proc. of N.S.A.S. Conference, Bournemouth, 1955.*

Dual Purpose Domestic Heat Pump. G. O. MacLean. *J.Inst.F.*, 1955, **28**. 224.

Electric Floor Warming. J. W. Moule, B.Sc., (Eng.), M.I.E.E. *Proc. of N.S.A.S. Conference, Bournemouth*, 1955.

Field Tests to Evaluate the Performance of Free-Standing Convector Fires with Restricted Throats. M. Davison, D. E. Kimber and R. E. J. Tullett. *J.Inst.F.*, 1955, **28**. 123.

Gas Council Report. 1954-55.

Housing Aspects of the Beaver Report, Some. Miss A. D. Boyd, B.A., F.S.H.M. *Proc. N.S.A.S. Conference*, Bournemouth, 1955.

Industrial Aspects of the Beaver Report and Clean Air Bill. G. Nonhebel, B.A., B.Sc., F.R.I.C., F.Inst.F. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Local Authorities, the Beaver Report and the Clean Air Bill. Contributions by Local Authority Representatives: Ald. C. H. Smith, O.B.E., D.L., M.R.San.I., Cllr. E. Gibbons, A.M.I.G.E., M.Inst.F., J. Graham, F.S.I.A., M.R.S.I., J. Douglas, M.D., D.P.H. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Lung Cancer Death Rates among Non-Smokers and Pipe and Cigarette Smokers. Dr. P. Stocks and Mr. J. M. Campbell. *Brit. Med. Journal*, 15th Oct. 1955.

Menace of Air Pollution, The, *Political & Economic Planning.*

Mortality and Morbidity During the London Fog. (1952) *Ministry of Health Report No.* 95. *H.M.S.O.*

National Coal Board Report and Accounts for 1954-55. H.M.S.O.

National Fuel Resources in the Light of National Fuel Requirements. G. E. Foxwell, C.B.E., D.Sc., F.Inst.P., M.Inst.Gas E., M.I.Chem.E. *J.Inst.F.* 1955. **28.** 551.

Plant Engineers Discuss Air Pollution. (Excerpts from paper by J. B. M. Mason). *Smokeless Air.* 1955. **26.** 103.

Problems and Control of Air Pollution. Ed. by F. S. Mallette. (Report of New York Conference, Amer. Soc. of Mech. Engs.).

Radioactive Pollution from Nuclear Explosions. Sir J. Cockcroft. *Smokeless Air.* 1955. **25.** 192.

Research (and the Beaver Report). C. J. Regan, B.Sc., F.R.I.C. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Small-Pipe Forced Circulation Central Heating. S. A. Burke, Ph.D., D.I.C., A.R.I.C., M.Inst.F. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Smoke Abatement in Practice. G. E. Foxwell, C.B.E., D.Sc., F.Inst.P., M.Inst.Gas E., M.I.Chem.E. *J.Inst.F.* 1955. **28**. 451.

Some Observations on London Fog. Waller and Lawther. *Brit. Med. Journal*, 3rd December, 1955.

Westminster District Heating Scheme, The. Ald. C. P. Russell, C.V.O., J.P. and Bryan Donkin, B.A., A.M.Inst.C.E., M.I.E.E. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

Whole House Warming. W. Davidson, Ph.D., M.Inst.Gas E., M.I.H.V.E. *Proc. N.S.A.S. Conference, Bournemouth*, 1955.

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Concerned with Air Pollution and Related Subjects

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ALKALI INSPECTORATE:
Chief Inspector, Minstry of Housing and Local Government, Whitehall, S.W.1. (Whitehall 4300, Ex 589 and 590).
Deputy Chief Inspector, do.
District Inspectors, District I, 76 Elton Road, Darlington. (Darlington 5795).
District II, 21 Hillcrest Road, Great Crosby, Liverpool, 23. (Great Crosby 2439).
District III, 24 Victoria Road, Sheffield, 10. (Sheffield 63954).
District IV, 40 Kingsdown Road, Senneleys Park, Birmingham, 31. (Birmingham, Priory 2994).
District V, 41 Henleaze Avenue Westbury-on-Trym, Bristol. (Bristol 68825).
District VI, 36 Spring Street, Hyde Park, London, W.2. (Ambassador 9925).
District VII, 2 Ashwood Avenue, Sale, Manchester. (Sale 9800).
Chief Inspector for Scotland—Department of Health for Scotland, St. Andrew's House, Edinburgh, 1. Edinburgh Central 2500.
AMERICA, AIR POLLUTION CONTROL ASSOCIATION OF, 4400 Fifth Avenue, Pittsburgh, 13, Pa.
AMERICA, OFFICE OF AIR AND STREAM POLLUTION, BUREAU OF MINES, U.S. Department of the Interior, Washington, 25, D.C.
ARCHITECTS AND SURVEYORS, INCORPORATED ASSOCIATION OF, 75 Eaton Place, London, S.W.1. (Sloane 5615).
ARTS, ROYAL SOCIETY OF, 6 John Adam Street, London, W.C.2. (Trafalgar 2366).

BRISTOL AND WEST CLEAN AIR COMMITTEE, Public Health Department, 48 Queen Square, Bristol, 1. (Bristol 20171).
BRITISH MEDICAL ASSOCIATION, B.M.A. House, Tavistock Square, London, W.C.1. (Euston 2111).
BRITISH STANDARDS INSTITUTION, British Standards House, 2 Park Street, London, W.1. (Mayfair 9000).
BUILDING CENTRE, 26 Store Street, London, W.C.1. (Museum 5400).
BUILDING RESEARCH STATION, Bucknall's Lane, Garston, nr. Watford, Herts. (Garston 2246).

CHEMICAL ENGINEERS, INSTITUTION OF, 56 Victoria Street, London, S,W.1. (Victoria 6161/2).
CHEMISTRY OF GREAT BRITAIN AND IRELAND, ROYAL INSTITUTE OF, 30 Russell Square, London, W.C.1. (Museum 1761).
CITY AND GUILDS OF LONDON INSTITUTE, Technology Department, 31 Brechin Place, London, S.W.7. (Fremantle 1121).
CIVIL ENGINEERS, INSTITUTION OF, Great George Street, London, S.W.1. (Whitehall 4577).
COAL BOARD, NATIONAL, Hobart House, Grosvenor Place, London, S.W.1. (Sloane 3401).
COAL UTILIZATION COUNCIL, 3 Upper Belgrave Street, London, S.W.1. (Sloane 9116).
COAL UTILIZATION RESEARCH ASSOCIATION, BRITISH, Randalls Road, Leatherhead, Surrey. (Leatherhead 4411).
COKE OVENS MANAGERS' ASSOCIATION, 1 Cliff Street, Mexborough, Yorks.
COKE RESEARCH ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1. (Mayfair 9736).
COKING INDUSTRY ASSOCIATION, BRITISH, 74 Grosvenor Street, London, W.1. (Mayfair 9736).
COMBUSTION ENGINEERING ASSOCIATION, 6 Duke Street, St. James's, London, S.W.1. (Whitehall 5536).
COUNTY BOROUGHS' ASSOCIATION, Town Hall, Oxford. (Oxford 2206).

County Councils' Association, 84 Eccleston Square, London, S.W.1. (Victoria 5934).
County Councils in Scotland, Association of, 3 Forres Street, Edinburgh. (Edinburgh 34991).

Electrical and Allied Industries Research Association, British, Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. (Leatherhead 3423). Laboratories, Wadsworth Road, Perivale, Middlesex. (Perivale 9511).
Electrical Development Association, British, 2 Savoy Hill, London, W.C.2. (Temple Bar 9434).
Electrical Engineers, Institution of, Savoy Place, Victoria Embankment, London, W.C.2. (Temple Bar 7676).
Electricity Authority, Central, Generation House, 170a Great Portland Street, London, W.1. (Museum 6844).

Fog Research Unit, Chemistry Department, Battersea Polytechnic, London, S.W.11. (Macaulay 1031).
Forest Products Research Laboratory, Princes Risborough, Aylesbury, Bucks. (Risborough 101-2).
Fuel, Institute of, 18 Devonshire Street, London, W.1. (Langham 7124).
Fuel and Power, Ministry of, Thames House South, Millbank, London, S.W.1. (Abbey 7000).
Fuel Research Station, River Way, Greenwich, London, S.E.10. (Greenwich 3065). (Scottish Branch: Thorntonhall, nr. Glasgow. (Glasgow, Busby, 1171).

Gas Council, Gas Industry House, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).
Gas Engineers, Institution of, 17 Grosvenor Crescent, London, S.W.1. (Sloane 8266).
Gas Industries, Society of British, 56 Victoria Street, London, S.W.1. (Victoria 8948).

Health Education, Central Council for, Tavistock House, Tavistock Square, London, W.C.1. (Euston 3341).
Heating and Ventilating Engineers, Institution of, 75 Eaton Place, London, S.W.1. (Sloane 3158).
Hospital Engineers, Institution of, 8 Red Lion Square, London, W.C.1. (Chancery 2971).
Housing and Local Government, Ministry of, Whitehall, London, S.W.1. (Whitehall 4300). (see also Alkali Inspectorate).
Housing and Town Planning Council, National, 42 Devonshire Street, London, W.1. (Langham 8440).
Housing Centre, 13 Suffolk Street, London, S.W.1. (Whitehall 2881).
Housing Incorporated, Institute of, 37 Strand, London, W.C.2. (Trafalgar 3622).

Iron and Steel Federation, British, Steel House, Tothill Street, London, S.W.1. (Whitehall 1030).
Iron and Steel Research Association, British, 11 Park Lane, London, W.1. (Grosvenor 4751).
Iron Founders' Association, British, 30 St. James's Square, London, S.W.1. (Whitehall 6866).

London and Home Counties Smoke Abatement Advisory Council, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1. (Abbey 6817).
Low Temperature Coal Distillers' Association of Great Britain Ltd., P.O. Box No. 21, Chesterfield, Derbyshire. (Bolsover 281).

Manchester and District Regional Smoke Abatement Committee, Town Hall, Manchester, 2. (Manchester, Central 3377, Ex. 341).
Mechanical Engineers, Institution of, Storey's Gate, London, S.W.1. (Whitehall, 7476/9).
Medical Officers of Health, Society of, Tavistock House South, Tavistock Square, London, W.C.1. (Euston 3923).
Meteorological Office (Air Ministry) Kingsway, London, W.C.2. (Forecast, Holborn 3434; Information, Trafalgar 8811).

METEOROLOGICAL SOCIETY, ROYAL, 49 Cromwell Road, London, S.W.7. (Kensington 0730).
METROPOLITAN BOROUGHS' STANDING JOINT COMMITTEE, Westminster City Hall, London, W.C.2. (Temple Bar 0111).
MIDLANDS JOINT ADVISORY COUNCIL FOR THE ABATEMENT OF SMOKE AND ATMOSPHERIC POLLUTION, Public Health Department, Council House, Birmingham, 3. (Birmingham, Central 7000, Ex.60).
MUNICIPAL AND COUNTY ENGINEERS, INSTITUTION OF, 84 Eccleston Square, London, S.W.1. (Victoria 5083).
MUNICIPAL CORPORATIONS, ASSOCIATION OF, Victoria Station House, London, S.W.1. (Tate Gallery 0764).

NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE, 71 Grosvenor Street, London, W.1. (Hyde Park 9706).

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	Martin's Bank Chambers, 33 Market Street, Nottingham. (Nottingham 41264).
North Western	89 Oxford Street, Manchester. (Central 9228).
Scotland	145 St. Vincent, Glasgow, C.2. (Glasgow City 7636).
	1 Peter Street, Dundee. (Dundee 2179).
	26 Drumsheugh Gardens, Edinburgh, 3. (Edinburgh 34331-5).

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY, 42 Queen Anne's Gate, London, S.W.1. (Whitehall 0211).

PARLIAMENTARY AND SCIENTIFIC COMMITTEE, 31 Palace Street, London, S.W.1. (Victoria 2608).
PUBLIC HEALTH AND HYGIENE, ROYAL INSTITUTE OF, 28 Portland Place, London, W.1. (Langham 2731/2).
PRESERVATION OF RURAL ENGLAND, COUNCIL FOR THE, 4 Hobart Place, London, S.W.1. (Sloane 4280).
PROTECTION OF ANCIENT BUILDINGS, SOCIETY FOR THE, 55 Great Ormond Street, London, W.C.1. (Holborn 2646).

ROYAL BURGHS OF SCOTLAND, CONVENTION OF THE, 51 Castle Street, Edinburgh. (Edinburgh 25179).
ROYAL INSTITUTE OF BRITISH ARCHITECTS, 66 Portland Place, London, W.1. (Langham 5721).
ROYAL INSTITUTION OF GREAT BRITAIN, 31 Albemarle Street, London, W.1. (Regent 5716).
ROYAL SOCIETY FOR THE PROMOTION OF HEALTH, 90 Buckingham Palace Road, London, S.W.1. (Sloane 5134).
RURAL DISTRICT COUNCILS' ASSOCIATION, 191/7 St. Stephen's House, London, S.W.1. (Whitehall 6641).

SANITARY ASSOCIATION OF SCOTLAND, ROYAL, 185 St. Vincent Street, Glasgow. (Glasgow, Central 3345).
SANITARY ENGINEERS, INSTITUTION OF, 118 Victoria Street, London, S.W.1. (Victoria 3017).

Sanitary Inspectors' Association, 19 Grosvenor Place, London, S.W.1. (Sloane 1770).

Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788). *See also* Building Research Station, Fuel Research Station.

Scottish Counties of Cities Association, City Chambers, Edinburgh. (Edinburgh, Central 2424).

Sheffield, Rotherham and District Smoke Abatement Committee, Town Hall, Sheffield. (Sheffield 27241).

Smoke Abatement Society, National

Central Offices: Palace Chambers, Bridge Street, London, S.W.1. (Trafalgar 6838).

East Midlands Division: Sanitary Inspectors' Office, 50 Shakespeare Street, Nottingham. (Nottingham 40584).

North East Division: Sanitary Department, Town Hall, Ashington. (Ashington 3210).

North West Division: Health Department, Town Hall, Manchester, 2. (Manchester, Central 3377, Ex. 339).

Scottish Division: City Chambers, Glasgow. (Glasgow, Central 9600, Ex. 421).

South East Division: Chief Sanitary Inspector, Town Hall, Acton, London, W.3. (Acorn 3232).

South Wales and Monmouthshire Division: Public Health Department, Dyfed Road, Neath, Glamorgan. (Neath 458).

West Midlands Division: Public Health Department, 67 Broad Street, Birmingham, 3. (Birmingham, Central 7000, Ex. 442).

Yorkshire Division: Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Leeds 30211, Ex. 29).

Social Service National Council of, 26 Bedford Square, London, W.C.1. (Museum 8944).

Solid Smokeless Fuels Federation, 74 Grosvenor Street, London, W.1. (Mayfair 0382).

Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788).

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Town and Country Planning Association, 28 King Street, London, W.C.1. (Temple Bar 5006).

Town Planning Institute, 18 Ashley Place, London, S.W.2. (Victoria 8815).

Urban District Councils' Association, 28 Victoria Street, London, S.W.1. (Abbey 6642).

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6. (Liverpool, Anfield 2271).

West Riding of Yorkshire Regional Smoke Abatement Committee, Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Liverpool 30211).

Women, Electrical Association for, 25 Foubert's Place, London, S.W.1. (Sloane 0401).

Women of Great Britain, National Council of, 36 Lower Sloane Street, London, S.W.1. (Sloane 0619).

Women's Advisory Council on Solid Fuel, 18 South Molten Street, London, W.1. (Mayfair 5358).

Women's Gas Federation, 1 Grosvenor Place, London, S.W.1. (Sloane 4554).

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Prices in brackets include postage and packing, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. If a number of items are ordered together excess postages will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.= H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

I THE LAW

Code No.

1. **The Law of Smoke Nuisances.** W. R. Hornby Steer. The only text-book on the law for England and Wales. With tables of cases, statutes, and relevant sections in full of the principal Acts. New Edition, 1948.
Cloth, 5s. (5s. 3d.); paper covers, 3s. (3s. 2d.)

51. **Model Byelaws, Smoke Abatement.** For Local Authorities proposing to make byelaws under Section 104 of the Public Health Act, 1936. (H.M.S.O., 1954).
1d. (3d.)

57. **Model Clauses** (*Revised Edition*, 1953). House of Lords and House of Commons. Contains Model Clauses for Prior Approval, Smokeless Zones and Heights of Chimneys. (H.M.S.O., 1953). 15s. (15s. 8d.)

(See also III, 71)

II CONFERENCE PROCEEDINGS AND REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans for post-war reconstruction. 1s. (1s. 2d.)

3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant, Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 3d.)

4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 4d.)

5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 10d.)

6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, " Brains Trust " session. 3s. 6d. (3s. 8d.)

7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948. 6d. (8d.)

8. **National Survey of Atmospheric Pollution, Interim Report.** A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference report. 1s. (1s. 2d.)

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35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's view of the Case against Smoke. 4s. 6d. (4s. 10d.)
42. **Margate Conference, 1950.** The Des Voeux Memorial Lecture—" Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as applied to New Housing and Railway Smoke. 6s. (6s. 4d.)
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III GENERAL

11. **Smoke: The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947). 21s. (21s. 10d.
13. **Smokeless Air.** The Society's quarterly magazine-type journal. News, articles, photographs, comment. 1s. (1s. 4d.) per annum, post free.
53. **Atmospheric Pollution: Its Origins and Prevention.** A. R. Meetham. A new publication covering the most important aspects of the problem. Fully illustrated. (Pergamon Press Ltd., 1952) 35s. (35s. 11d.)
58. **Committee on Air Pollution.** The Interim Report of the Beaver Committee appointed in July, 1953 to examine the nature, causes and effects of air pollution and the efficiency of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations. (H.M.S.O. 1953). 1s. 6d. (1s. 10d.).
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IV HISTORICAL

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V INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Fuel and Power. (H.M.S.O., 1945). 1s. (1s. 3d.)

36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949). 1s. (1s. 3d.)

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(See also II, 3, 4, 5, 6, 35, 42, 47, 52, 61, 70; III, 11, 53; VII, 55, 64)

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38. **The Work of the Fuel Research Station.** Dr. A. Parker. Reprint from 1949 Conference Proceedings by the Director of Fuel Research. Illustrated. 1s. (1s. 2d.)

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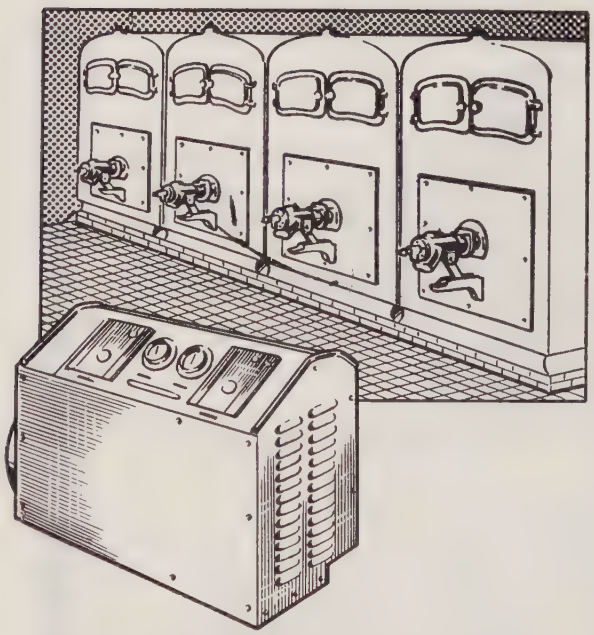
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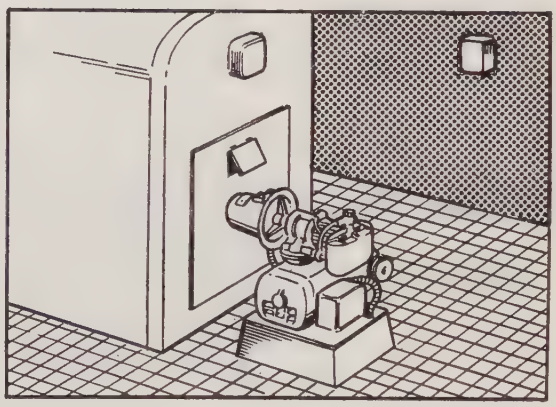
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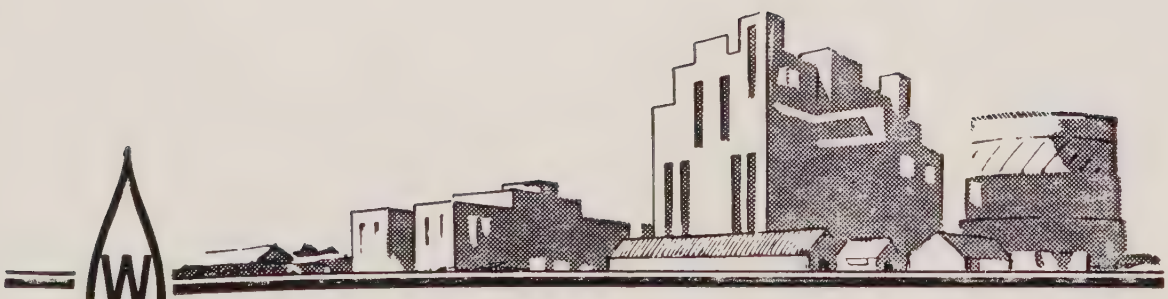
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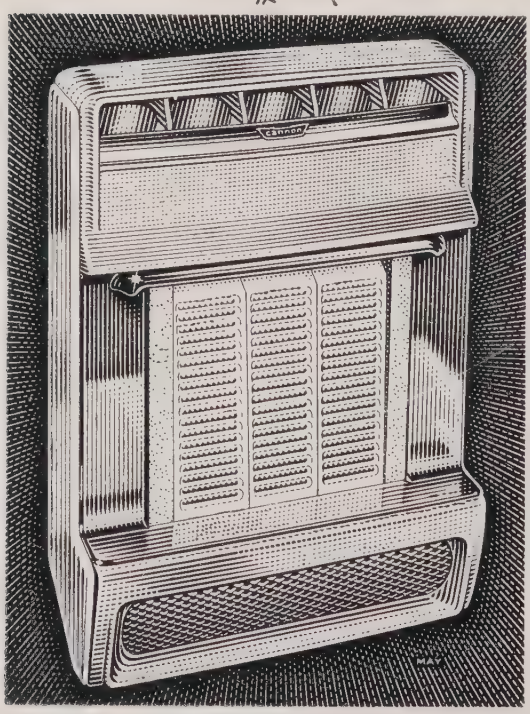
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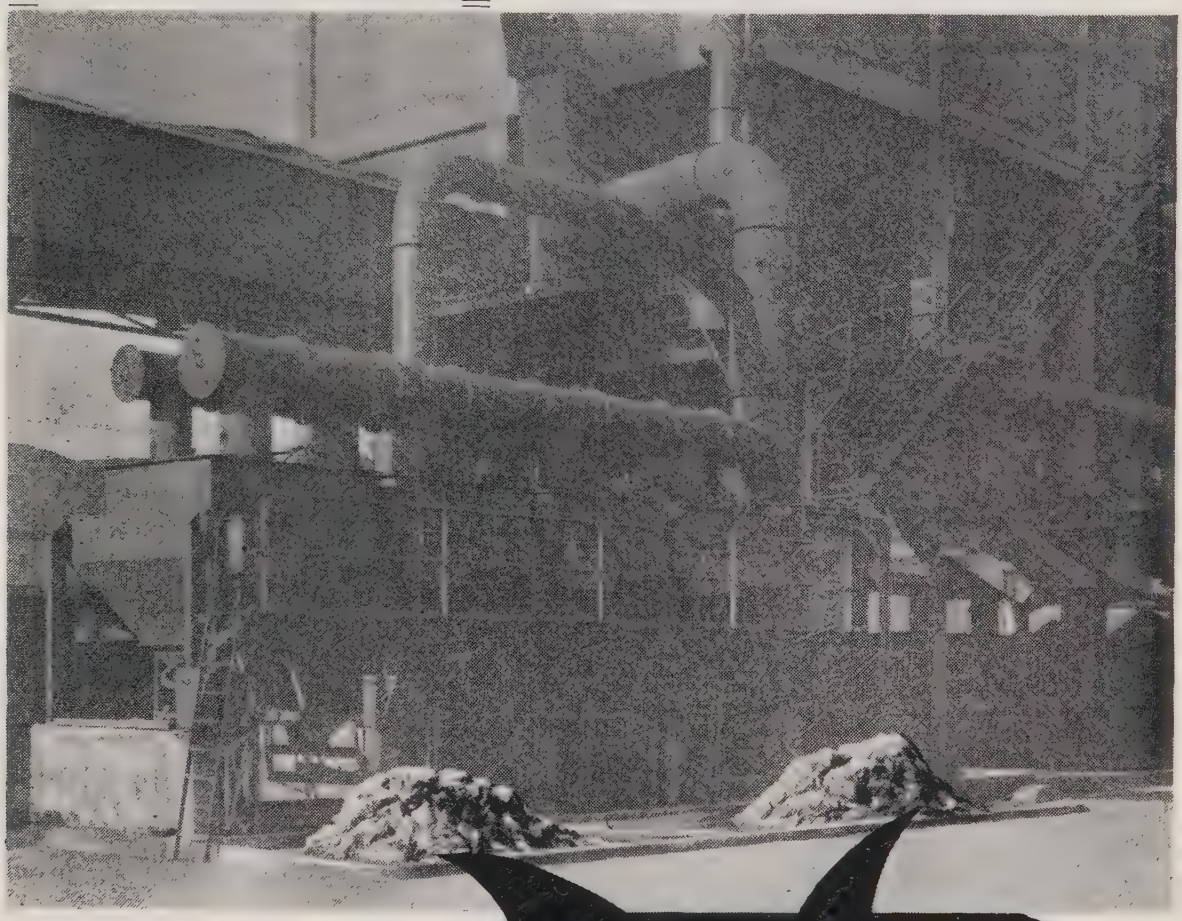
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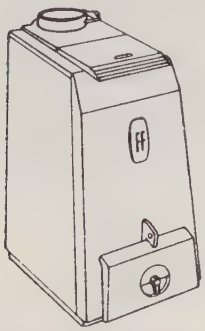
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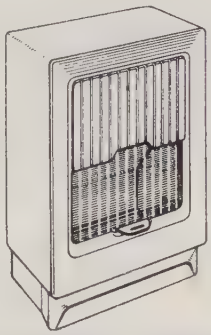
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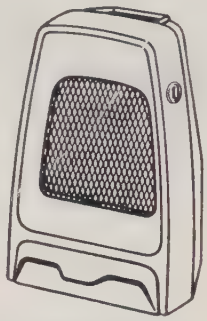
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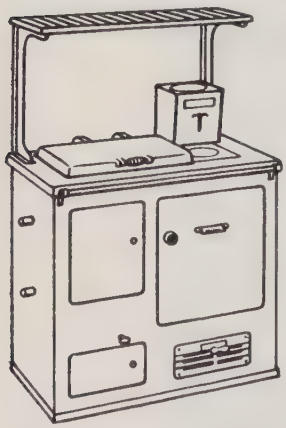
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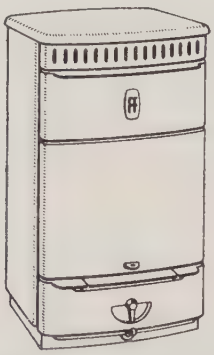
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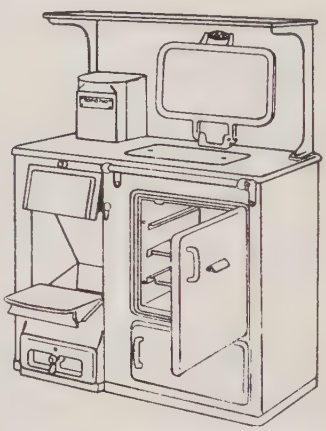
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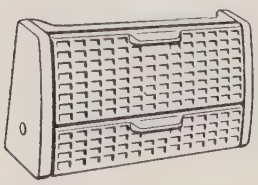
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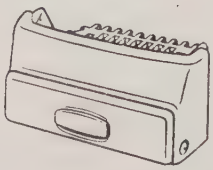
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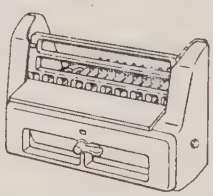
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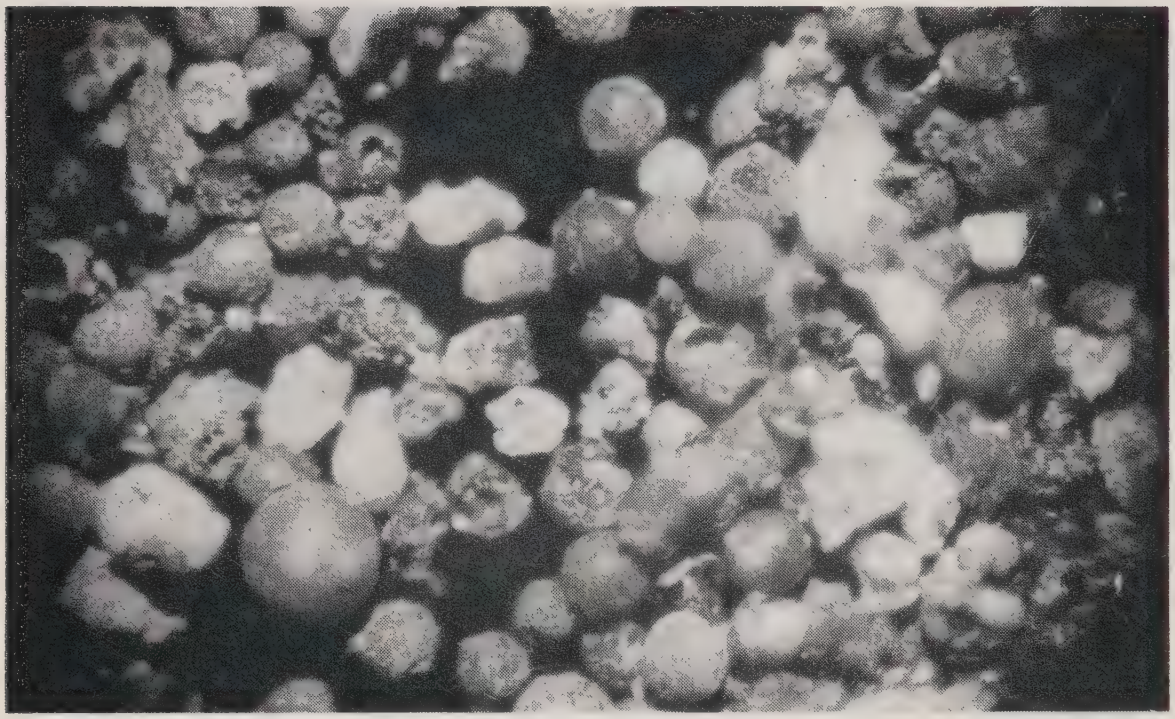
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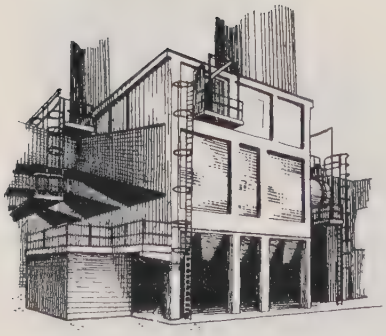
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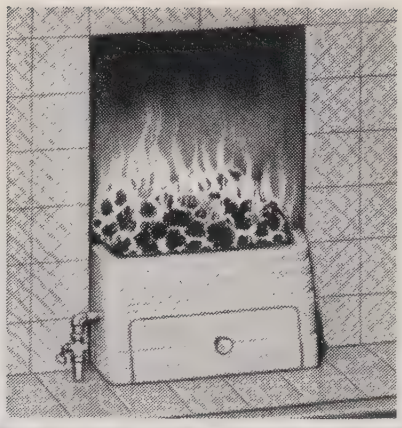
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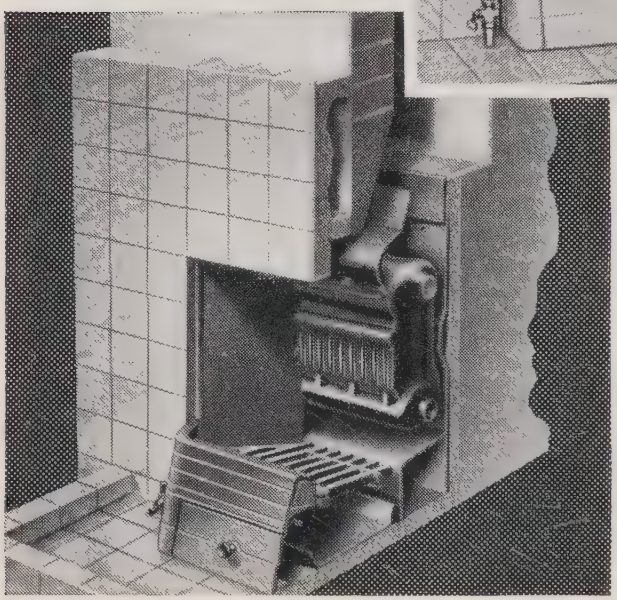
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Greater Comfort for the Smaller Home

IDEAL NEOFIRE No. 2C

British Patent No. 591977

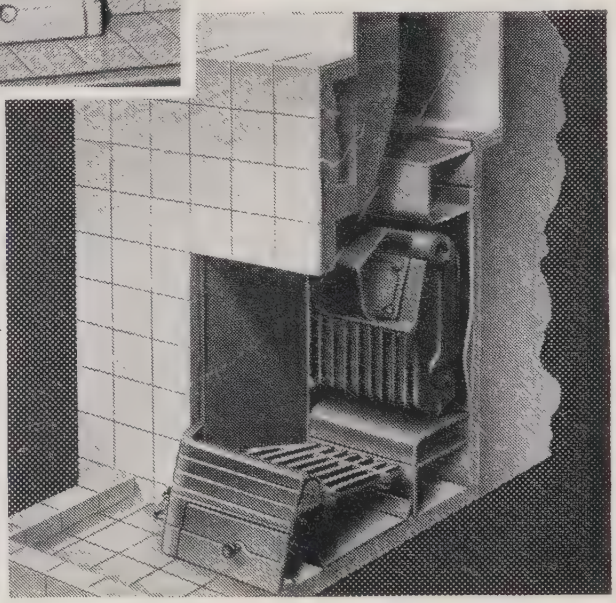




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IDEAL NEOFIRE No. 10

British Patent No. 753719



The Ideal No. 10 Neofire is primarily designed for Direct Hot Water Supply, with a cylinder of not less than 30 gallons. The boiler can be Bower-barffed (rust resistant treatment) for use in soft water districts.

In hard water areas the No. 10 Neofire can be installed to provide both Domestic Hot Water *and* Background Heating.

Each Neofire has a boiler of sufficient power to take care of approximately 40 square feet of radiation, plus an average amount of piping, and to provide hot water for all domestic purposes with a cylinder of 20 gallon nominal capacity. Though primarily designed to burn coke, Ideal Neofires will also burn coal, anthracite or special fuels; they consume approximately 2 lb. per hour, utilising up to 60 per cent of the heat contained in the fuel, compared with 15-20 per cent by the ordinary open fire.

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★ APPROVED DOMESTIC APPLIANCES FOR SMOKE CONTROL AREAS ★

Information and authoritative brochures on modern approved appliances for domestic heat services and solid smokeless fuels are available on request. The S.S.F.F. maintains a comprehensive Advisory Service, which is available to all and welcomes every opportunity of assisting in matters relating to Smoke Control Areas and the use of SOLID SMOKELESS FUELS.

S.26

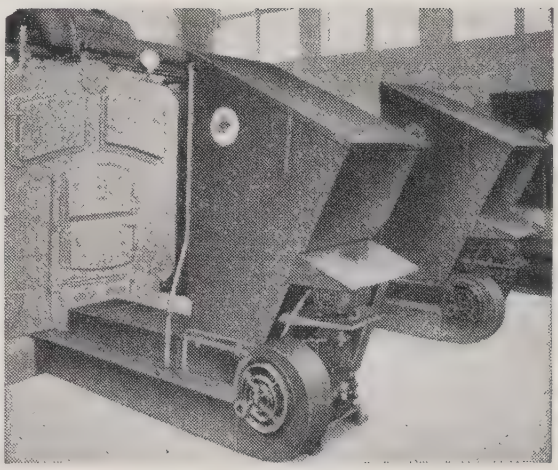
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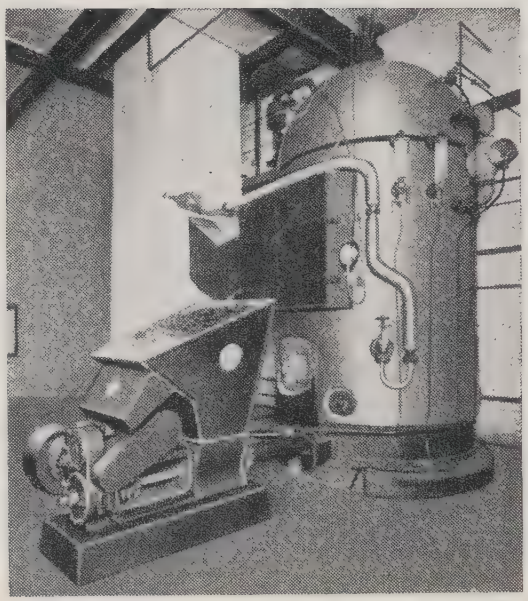
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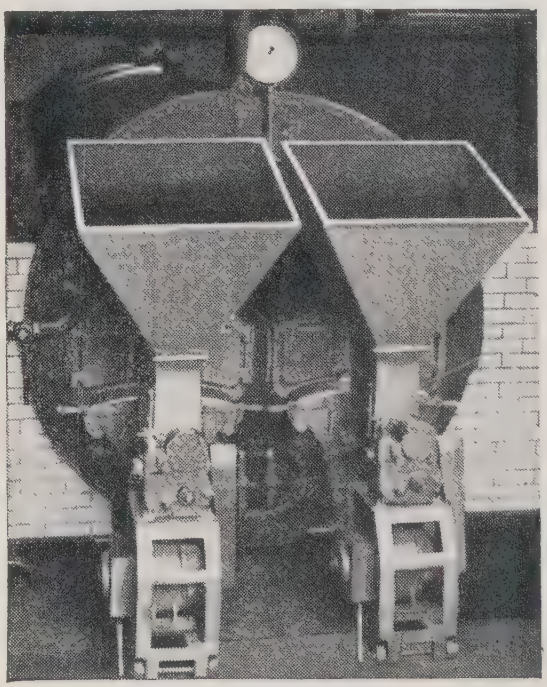
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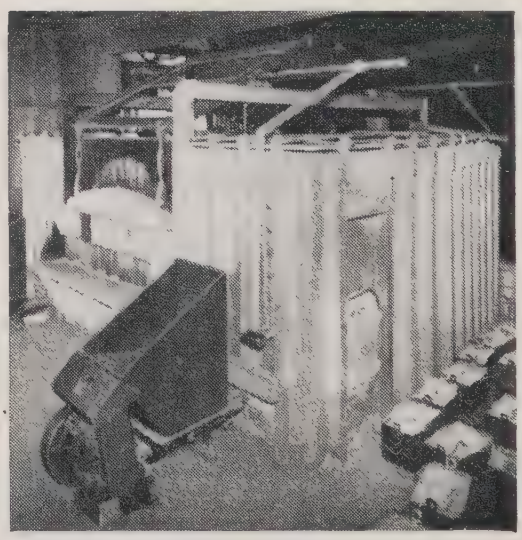
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National Smoke Abatement Society

CLEAN AIR YEAR BOOK

1957

Foreword

Two changes have been made in this edition of the Society's Year Book. The reasons for the new title will be obvious and do not need explanation. The re-arrangement of the contents, bringing the Information section to the front, with the Society's reports, etc., following, has been made to emphasize the usefulness of the publication as a reference book to those who are not yet members of the Society. The Information section has been further extended, in ways that we hope will be valued, but suggestions for additional material or improved presentation will be appreciated.

Contents

INFORMATION SECTION

	Page
The Law Relating to Air Pollution	12
The Clean Air Act, in Outline	12
Building Byelaw	14
Authorized Fuel Regulations	14
Established Smokeless Zones	14
Smokeless Housing Estates	14
The Alkali &c., Works Regulation Act	14
Road Traffic Pollution Law	15
Investigation of Air Pollution	15
National Industrial Fuel Efficiency Service	16
British Standards	17
City and Guilds of London Examinations	17
The Beaver Report	18
Major Smog Disasters	20
Estimates of Pollution	21
The Clean Air Case: A Synopsis	21
The History of Air Pollution	22
Recent Papers and Reports	24
Guide to Publications	26
Directory of Organizations	30

N.S.A.S. SECTION

	Page
Officers, Council and Divisions	33
27th Annual Report, for 1956	35
Divisional Reports	41
Information about the Society	45
Services to Members	46
Affiliated Local Authorities	48
Accounts, 1955–56	50
Covenant Subscription Scheme	52
Subscriptions and Donations	53

Index to Advertisers

	Page
British Electrical Development Association	64
Cannon (GA) Ltd.	*Cover ii*
Coalite and Chemical Products Ltd.	5
Drummond Patents Ltd.	1
Gas Council	2
General Electric Co. Ltd.	*Cover iv*
Grange-Camelon Iron Co. Ltd.	4
Holmes, W. C. & Co. Ltd.	6
Honeywell-Brown Ltd.	7
Ideal Boilers & Radiators Ltd.	8
Mirlees Watson Ltd.	10
National Industrial Fuel Efficiency Service	60
Radiovisor Parent Ltd.	63
Simon-Carves Ltd.	62
Solid Smokeless Fuels Federation	9
Sturtevant Engineering Co. Ltd.	3
West's Gas Improvements Ltd.	61
Woodall Duckham Construction Co. Ltd.	*Cover iii*

THE LAW RELATING TO AIR POLLUTION

THE PRESENT POSITION

1957 is a year of transition. A number of the provisions of the Clean Air Act, 1956 came into force on 31st December, 1956, but the principal sections for the control of dark smoke and of grit and dust will not operate until some time in 1958. At present, therefore, the provisions of the Public Health Act, 1936, on smoke abatement, remain effective. Under this the word "smoke" includes "soot, ash, grit and gritty particles." Provisions (S.101) that require a nuisance to be proved or enable a "best practicable means" defence to be used, are rarely invoked, and many local authorities have secured byelaws (S.104) which define a nuisance to be the emission of *black* smoke for more than two (or in some cases, three) minutes in thirty. No byelaws for smoke other than black have been approved. Private dwellings are exempt from action, and no action may be taken that "interferes with or obstructs" the efficient working of mines or metallurgical processes.

Action may be taken with regard to smoke or other nuisance from air pollution under common law procedure and can be used to secure both damages and an injunction. Such action will not be affected by the coming into force of the Clean Air Act.

The sections of the Clean Air Act now in force are concerned with: new furnaces to be smokeless, smoke control areas, height of chimneys, pollution from premises controlled under the Alkali Act, colliery spoilbanks, temporary exemptions for research purposes, Crown premise (in part), the Clean Air Council and the necessary administrative sections. (See also the outline of the Act, following).

The sections to come into force in 1958 include those relating to dark smoke emission, grit or dust from furnaces, railway engines, vessels and Crown premises (in part).

Local Acts. Apart from a number of older local Acts, over 50 local authorities obtained powers, between 1946 and 1956, for the establishment of smokeless zones and/or for the optional prior approval of new industrial fuel-burning installations. (A list of established smokeless zones follows.) Local authorities may continue to use these provisions unless the relevant sections of their Acts should be repealed, as may be done under section 35 of the Clean Air Act.

THE CLEAN AIR ACT, IN OUTLINE

For a fuller digest of the contents of the Act reference may be made to the *Summary of the Clean Air Act*, published by the Society. The following outline necessarily omits much detail of importance.

*SS 1 and 2 deal with **Dark Smoke**, defined as shade No. 2 of the Ringelmann scale. Regulations are to be issued on the extent to which dark smoke will be permitted. It will be an offence to emit dark smoke beyond these limits, and the only defences that may be used are specified: lighting up from a cold furnace; unavoidable failure of plant; unavoidable use of unsuitable fuel; and a combination of any of these. For seven years (from 5th July, 1956) there is a further defence that it was not possible to complete necessary alterations to plant.

S.3 requires all **New Furnaces**, other than domestic (i.e., less than 55,000 B.Th.U. per hour) to be as smokeless as practicable. Local authorities *must* be notified of new installations and *may* be asked to give prior approval.

S.4 relates to regulations for the installation of **Smoke Density Recorders,** etc.

*SS.5 to 9 require all furnaces to use means to minimize **Grit and Dust from Furnaces**; large *new* furnaces (burning more than 1 ton per hour) and all new pulverized fuel furnaces of any size to secure prior approval of grit arresting equipment to be installed; regulations for measuring and recording grit and dust; supplying local authorities with information about such records; and putting outdoor furnaces on the same footing as those in buildings.

S.10, **Height of Chimneys**, gives powers to local authorities to reject plans for new buildings if chimneys are not sufficiently high.

SS. 11–15 concern **Smoke Control Areas**, which may be established by local authorities under an Order requiring Ministerial approval. Smoke control areas may be entirely smokeless (as with smokeless zones) or may make certain exemptions or impose special conditions. For domestic (and charitable, etc.)

premises local authorities may make a grant towards the cost of converting grates, etc., to appliances suitable for smokeless use. The authority may recover part of the grant from the central Exchequer, and normally the cost of conversion will be: owner or occupier and local authority 30 per cent each, Exchequer, 40 per cent.

In a case of smoke emission in a control area it is a defence if an authorized fuel only was being burned. Regulations defining authorized fuels have been issued. (Stat.Inst. 1956, No.2023.)

*S.16 deals with **Smoke Nuisances** from smoke other than dark smoke. In this case it is an offence only when a nuisance to inhabitants of the neighbourhood has been proved.

S.17 concerns *processes* that are scheduled as **Special Cases** by Ministerial regulation, and in which the control of pollution will be by the Alkali Inspectorate and not the local authorities. The processes include those that are or will be registered under the Alkali Act. With respect to smoke, grit and dust the Minister may transfer control of particular *premises*, or part of them, to a local authority.

S.18, on **Colliery Spoilbanks**, requires the owner of a coal or shale mine or quarry to use all practicable means to prevent the combustion of deposited refuse, and to minimize any smoke or fumes that may occur.

*S.19 is to the effect that **Railway Engines** are subject to dark smoke emission control as if they were buildings. The owner of the engine must also use any practicable means there may be to minimize smoke emission.

S.20 is to the effect that dark smoke from **Vessels** in specified waters shall be controlled as such smoke from buildings. This applies to vessels in any water not navigable to a sea-going ship and in other defined waters.

S.21 gives a local authority power of **Exemption** from action under the Act, for a stated period, for research or investigations relevant to the problem of air pollution.

†S.22 requires a local authority to report smoke emissions from **Crown Premises** to the Minister responsible for the premises. He must then inquire into the case and if there is cause for complaint must use all practicable means to prevent or minimize the emission or abate the nuisance.

S.23 provides for a **Clean Air Council**, with the Minister of Housing, Local Government and Welsh Affairs as its Chairman, to be set up to review progress and obtain advice on air pollution matters. There is also to be a similar Clean Air Council for Scotland.

S.24 states that **Building Byelaws** "may require the provision in new buildings of such arrangements for heating or cooking as are calculated to prevent as far as practicable the emission of smoke." (A model byelaw for this purpose has now been issued.)

S.25 gives local authorities power to undertake or contribute towards the cost of **Research and Publicity**, etc.

S.26 relates to the improper **Disclosure of Information** obtained as a result of administering the Act.

S.27. **Penalties.** In summary, and in each case quoting the maximum penalty: *Dark Smoke*, private dwellings, £10; other cases, £100, for each offence (e.g. each day). *New furnaces not smokeless*: £10. *Smoke emission in control areas:* £10 for each offence. *Disclosure of information* £100 or 3 months imprisonment, or both. *Other offences:* £100.

S.28 relates to **Authorization of Works.**

S.29 on **Enforcement**, refers to the powers of local authorities.

S.30 on **Notification of Offences**, is procedural.

SS.31, 32, and 33 deal with administrative and legal matters.

S.34 on **Interpretation**, gives the meaning to be applied to a number of words and phrases used in the Act.

†S.35 deals with **Repeals and Transitions.**

S.36 excludes **Northern Ireland** from the provisions of the Act.

S.37 gives the **Short Title** and commencement of the Act.

The First Schedule relates to the confirmation and coming into operation of orders of local authorities under section 11.

The Second Schedule consists of amendments to the Alkali &c., Works Regulation Act, 1906.

The Third Schedule gives modifications of, and provisions supplementary to, Public Health Acts, etc.

†**The Fourth Schedule** lists the enactments repealed by the new Act.

* Denotes sections not yet in operation.
† Denotes sections of which a part is not yet in operation.

BUILDING BYELAW

Equipment of new Buildings

A Model Byelaw, to meet the provisions of section 24 of the Clean Air Act has been issued by the Ministry of Housing and Local Government. This provides for new buildings to be equipped with such appliances only as are suitably designed to burn gas, electricity, gas coke or anthracite. It does not apply to larger appliances, of a capacity of 55,000B.Th.U. or more per hour, which are controlled by section 3 of the Act. The byelaw does not require smokeless fuels to be used, but ensures that suitable appliances are installed in new buildings which later may be included in a smoke control area. An appliance suitable for gas coke or anthracite will also be suitable for the more reactive cokes and semi-cokes.

AUTHORIZED FUEL REGULATIONS

The Smoke Control Areas (Authorized Fuels) Regulations came into force on 31st December, 1956. These relate to section II of the Clean Air Act, which provides for a defence in the case of smoke emission from a building in a smoke control area if it is proved that the smoke "was not caused by the use of any fuel other than an authorized fuel." The fuels authorized in the regulations are: anthracite, briquetted fuels carbonized in the process of manufacture, coke, electricity, gas, low temperature carbonization fuels and low volatile steam coals.

ESTABLISHED SMOKELESS ZONES

	Date	*Area, in acres*
Coventry	1951	30
Manchester ..	1952	104
Rochdale	1954	67
Bolton	1954	86
Manchester *extension* ..	1955	308
Salford	1955	27
Bradford (*central*)	1955	59
City of London ..	1955	whole of city
Tottenham ..	1956	$4\frac{1}{2}$
Preston	1956	50
Birmingham (*central*)	1956	93
Birmingham (*Garretts Green*)	1956	110

SMOKELESS HOUSING ESTATES

in which it is a condition of tenancy that smokeless fuel only be used.

Barking	Nottingham
Bradford	Salford
Long Eaton	Warwick
Motherwell	Woolwich

THE ALKALI, ETC., WORKS REGULATION ACT

The alkali, etc., Works Regulation Act, 1906, consolidates and extends previous similar Acts, the first of which was passed in 1863.

The Act includes a schedule of chemical processes and a list of noxious or offensive gases. Since 1906, this schedule and list have been extended by Statutory Orders made under the Public Health (Smoke Abatement) Act, 1926 and the Alkali, etc., Works Regulation (Scotland) Act, 1951. Such orders were made in 1928, 1935, 1939 and 1950. The essence of the Act lies in the requirements that (1) scheduled processes must be registered annually, (2) as a prior condition in the case of a first registration the scheduled process must be provided to the satisfaction of the Chief Inspector with the "best practicable means" for preventing the escape of noxious or offensive gases to the atmosphere and for rendering such gases harmless and inoffensive, (3) the "best practicable means" must thereafter be maintained in good and efficient working order and must be operated continuously, (4) in the case of certain processes, upper limits are specified for the concentration of total acidity in effluent gases which may be discharged to the atmosphere.

Provision is made for the setting up and maintenance of an inspectorate to administer the Act, and regulations are included relating to the registration and inspection of works, general procedure, penalties, etc. The Chief Inspectors are required to make an Annual Report to be laid before Parliament, relating to the work of the inspectorate. (*See also Directory.*)

Under the Clean Air Act, 1956, the provisions of the Alkali Act are extended to apply to smoke, dust and grit from premises controlled under the Act as they already do to noxious or offensive gases. Thus from 31st December 1956 virtually all forms of air pollution from premises registered under the Alkali Act will be

subject to control under that Act by the Alkali Inspectorate. This applies to those parts of any work as is directly concerned in the processes which necessitate registration. Any other parts of a work are the responsibility of the local authority.

ROAD TRAFFIC POLLUTION LAW

The Statutory Regulations governing the emission of smoke or other forms of pollution from road vehicles are made by the Minister of Transport in exercise of powers conferred on him by sections 3, 17, 30, & 111 of the Road Traffic Act, 1930, (20 & 21 Geo.5.c.43.).

The Regulations at present operative came into force on 1st January 1952, and are known as "The Motor Vehicles (Construction and Use) Regulations, 1951." Under Part II.A. of the Regulations, governing the construction, weight and equipment of vehicles, Regulation 21 (Emission of smoke or vapour), states; "Every motor vehicle shall be so constructed that no avoidable smoke or visible vapour is emitted therefrom."

Under Part III of the Regulations, governing the use of vehicles, Regulation 78 (Maintenance of vehicle so as not to emit smoke, etc.), states; "Every motor vehicle shall be maintained in such condition, and shall be so driven and used on a road, that there shall not be emitted therefrom any smoke, visible vapour, grit, sparks, ashes, cinders or oily substance, the emission of which could be prevented or avoided by the taking of any reasonable steps or the exercise of reasonable care, or the emission of which might cause damage to other persons or property or endanger the safety of any other users of the road in consequence of any harmful content therein."

THE INVESTIGATION OF AIR POLLUTION AND OTHER WORK OF THE FUEL RESEARCH ORGANIZATION

The Department of Scientific and Industrial Research, through its Fuel Research Organization, is actively engaged in research investigations on problems of atmospheric pollution arising through the burning of coal and other carbonaceous fuels. The programme of The Fuel Research Station includes several main lines of attack:

(i) systematic measurements of pollution by smoke, grit and sulphur in many parts of the country and development of improved methods of measurement.

(ii) investigation of factors affecting dispersion of pollution, study of nature and distribution of pollution during fog, determination of minor pollutants, and participation in co-operative investigations of damage caused by pollution.

(iii) the development of improved methods for the burning of fuels to provide for more efficient combustion with consequent reduction in the quantity of smoke emitted. This work covers both industrial and domestic utilization of fuels.

(iv) research work on processes for the removal of sulphur compounds from the flue gases of large industrial coal-burning installations.

(v) researches on the production of coke that will burn more freely than ordinary gas coke and can be used to give a smokeless fire with old-fashioned open-fire grates.

Much of the work on the general measurement of atmospheric pollution is made possible through the co-operation of local authorities and other bodies, who make regular measurements of the amounts of pollution within their areas. The Fuel Research Station is responsible for the collation and the publication of the results of these observations, in addition to which it gives advice and assistance on such matters as the most suitable types of measuring apparatus, selection of observing sites, etc., to bodies wishing to start observations in their areas.

On 31st December 1956 regular observations of atmospheric pollution were being made by about 251 local authorities and other co-operating bodies, involving

the use of nearly 2,400 instruments of various types. The results of these observations are circularized among the organizations co-operating in the investigation, in the form of a monthly bulletin, which also contains abstracts of recent literature dealing with atmospheric pollution. A more detailed consideration of the data, including the results of statistical analyses to determine the nature of any trends, is given in D.S.I.R. Reports on the Investigation of Atmospheric Pollution, published by H.M. Stationery Office. These reports also contain an account of research investigations by the Department on the measurement and properties of atmospheric pollution. The 27th report in this series, covering observations during the 10 years ended 31st March 1954, was published by H.M. Stationery Office in December 1955.

Local Authorities and other bodies who co-operate with the Department in the investigations of atmospheric pollution, either by making observations or by contributing towards the cost of the investigation, or both, are entitled to representation on the Standing Conference of Co-operating Bodies, which meets twice annually to discuss matters of interest connected with atmospheric pollution. At the end of 1956 a total of some 274 co-operating bodies, over 190 had appointed representatives to serve on this Conference.

Boiler installations burning very large quantities of coal, such as large electricity generating stations, may give rise to high local concentrations of oxides of sulphur in the air. Processes have been developed for the removal of these substances from the flue-gases before discharge to the air, but the problem presents many difficulties, both technical and economic. A process which is undergoing investigation in the laboratory and on a pilot-plant scale at the Fuel Research Station, is the Fulham-Simon-Carves Ammonia Process. The progress of this work has led the Central Electricity Authority to install a pilot plant to treat 2 million cubic feet of flue gas an hour at Nottingham generating station. An important feature of this process is that the sulphur is recovered as saleable products—namely ammonium sulphate and sulphur.

Considerable attention has been given at the Fuel Research Station to the problem of reducing the amount of smoke emitted from coal-fired industrial boilers. A new type of fire-door, which not only prevents the emission of smoke from hand-fired, natural-draught, shell-type boilers, but also saves up to 10 per cent. of the fuel, has been developed and is now being manufactered commercially. The same principles have now been applied to forced-draught, hand-fired boilers and a smoke eliminator developed and proved to be as efficient as the natural draught smoke eliminator. Arrangements have been made for its manufacture.

Many makers of domestic fuel-burning appliances are now paying particular attention to the design of appliances suitable for burning coke and other smokeless fuels with high efficiency. The Fuel Research Station is assisting in this work by carrying out exhaustive tests on the newly-developed appliances. Those appliances which are tested and found to be satisfactory are placed on the List of Recommended Domestic Solid Fuel Appliances, published jointly by the Coal Utilization Council and the Solid Smokeless Fuels Federation. This list is circulated for the guidance of local authorities and is available to the general public.

Although the most common solid smokeless fuel—ordinary gas coke—burns well on improved open fires and stoves, it is difficult or impossible to burn it with the old-fashioned open fire still in general use. Tests on the carbonization of weakly-caking coals, not normally used for gas-making have shown that they can yield freely-burning coke that can be used as a smokeless fuel to give a good fire on any type of grate.

THE NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE

The National Industrial Fuel Efficiency Service, which was formed in May, 1954, to take over and expand the industrial fuel efficiency services formerly provided by the Ministry of Fuel and Power is industry's own Fuel Efficiency Service. It offers practical help to firms large or small to eliminate the waste that occurs in the generation of heat and power and in all stages of their application, whatever type of fuel is used.

N.I.F.E.S. provides throughout the country a full Advisory Service by experienced Fuel Engineers. The services offered include a survey which shows the conditions under which the existing plant

can be operated at maximum efficiency, a detailed inspection of power and process plant performance or a complete survey that will show where heat is utilized, where waste occurs, and how improvements can be made. Regular Service Contracts that ensure that plants are kept at maximum efficiency can also be arranged. N.I.F.E.S. engineers also work in close liaison with Public Health Inspectors and can give advice on problems of excessive smoke and grit emission.

N.I.F.E.S. other activities include the publication of advisory pamphlets on Fuel Efficiency and the furthering of all forms of education for boilerhouse operatives and for other personnel engaged in, or directly concerned with, the use of heat and power. To help boiler operators who are unable to attend Technical Colleges, N.I.F.E.S. has a home study course leading to the City and Guilds of London Boiler Operators' Certificate.

N.I.F.E.S. also gives advice on applications for Government Loans to finance fuel-saving schemes. Repayment of loans may be spread over the life of the equipment up to a maximum of twenty years, no interest being charged on loans for the first two years after the equipment has been installed.

All enquiries should be addressed to the appropriate Area Engineer at the address given in the Directory.

BRITISH STANDARDS RELATING TO AIR POLLUTION

There are at present four British Standards relating to air pollution, as follows:

Deposit Gauges for Atmospheric Pollution (1747).

Simple Smoke Alarms and Alarm Metering Devices (2740).

Recommendation for the Construction of Simple Smoke Viewers (2741).

Smoke Density Indicators and Recorders (2811).

More details of these publications will be found in the *Guide to Publications, Section VIII.*, on page 29. All the above Standards are obtainable from the N.S.A.S. or direct from the British Standards Institution at British Standards House, 2 Park Street, London, W.1.

The Institution also intend to publish a standard for the Ringelmann Chart (as B.S.2742), complete with a miniature chart.

CITY AND GUILDS OF LONDON INSTITUTE EXAMINATIONS

The City and Guilds of London Institute this year announced a further increase in the numbers of candidates for their examinations in Boilerhouse Practice and related subjects. This was particularly, and gratifyingly noticeable in the Boiler Operator's Certificate examination, candidates for which numbered almost 2,000 and more than 80 per cent. of whom obtained certificates.

It will be remembered that the N.S.A.S. through their active members on the Institute's Advisory Committee, advocated a "National Certificate" of this nature for many years. Candidates entering in 1956 included, in addition to those entering in the normal way through technical colleges, employees of the C.E.A., the N.C.B., and others employed in private industry who had been prepared by courses organized by the National Industrial Fuel Efficiency Service.

Also, after a reduction in numbers in 1955 there has been an increase in the number of candidates who took Boilerhouse Practice examinations, and there are indications in this subject of further increases forthcoming in 1957. It is unfortunate that, up to the present, little interest is displayed in the advanced examinations in Combustion Engineering and Fuel Technology which have been carefully designed to follow the earlier subjects.

The first examinations in Solid Fuel Production, Distribution and Utilization (Subject 188) announced last year took place in 1956. Thirteen candidates entered of whom nine obtained 2nd Class Certificates. Fourteen technical colleges are now operating courses in this subject and it is anticipated that the number of candidates will steadily grow. The syllabuses in Fuel Technology have recently been revised and examinations based on the new syllabuses will be taken for the first time in 1957.

THE BEAVER REPORT

The Report is so comprehensive and detailed that a useful and balanced summary is impracticable. For reference, therefore, are quoted only the basic policy statements given in the Introduction, the recommendations, and the main conclusions of the appendix on the economic cost of air pollution.

Para 6: In presenting this Report we wish to state our emphatic belief that air pollution on the scale with which we are familiar in this country today is a social and economic evil which should no longer be tolerated, and that it needs to be combated with the same conviction and energy as were applied one hundred years ago in securing pure water. We are convinced that given the will it can be prevented. To do this will require a national effort and will entail costs and sacrifices; the recommendations made in this Report will involve expenditure by the Government, local authorities, industry and householders alike. But we are confident that our proposals, if carried out, will secure happier and more healthy living conditions for millions of people, and that on all counts the cost of the cure will be far less than the national loss in allowing the evil to continue.

Para 7: We are satisfied that the most serious immediate problem to be tackled is visible pollution by smoke, grit and dust, and we have been able to make definite recommendations in regard to these. We must emphasise that the problem is not one which can be solved overnight. Real improvement can be secured only by a continuous programme urgently and insistently carried out over a number of years. The objective of our recommendations is that by the end of ten to fifteen years the total smoke in all heavily populated areas would be reduced by something of the order of 80 per cent. This would mean a degree of freedom from air pollution which many parts of the country have not known for more than a century. With regard to gaseous pollution, there is not yet the knowledge to deal effectively with the whole problem; but we have made a number of recommendations for preventive action and have indicated the directions in which ultimate solutions may be found.

Para 8: It is basic to all our recommendations that at the outset it should be made the declared national policy to secure clean air, and that a statement to this effect should find expression in the new legislation—the "Clean Air Act"—which we are recommending.

Recommendations—Legislation

(1) Subject to certain exceptions the emission of dark smoke from any chimney should be prohibited by law.

(2) The use of efficient grit and dust arresting plant should be obligatory in the new industrial installations which burn pulverized fuel, or solid fuel in any form at a maximum rate of 10 tons an hour or more. It should be the duty of the owner or occupier of the premises on which any such installation, new or existing, is situated, to take measurements of grit emission and to inform the local authority of the results if so required. In other industrial installations fired by solid fuel all reasonable practicable steps should be taken to prevent the emission of grit and dust.

(3) In the case of certain industrial processes in which the prevention of dark smoke, grit or harmful gases presents special technical difficulties, responsibility for ensuring that the best practicable means of prevention are used at all times should be vested in the Alkali Inspectorate and the provisions of the Alkali Acts should be extended accordingly.

(4) The provisions now in force under a number of local Acts for regulating the design of new industrial furnaces should be included in general legislation.

(5) The law for the control of smoke from railways, and of pollution from colliery spoilbanks, should be brought up to date and strengthened. Responsibility for enforcement should rest with the local authorities.

(6) Local Authorities should have power under general legislation by means of Orders requiring confirmation by the appropriate Ministers to establish (1) smokeless zones in which the emission of smoke from chimneys would be entirely prohibited; and (2) smoke control areas in which the use of bituminous coal for domestic purposes would be restricted.

(7) Financial assistance should be provided by local authorities and by the Exchequer towards the costs incurred by house owners in converting appliances in

smokeless zones and smoke control areas.

(8) Domestic heating appliances installed in all new premises should be of approved types.

(9) The present purchase tax of 50 per cent. on gas and electric room and water heaters should be removed.

(10) Except for the processes referred to in (3) above, responsibility for enforcing the law for the prevention of smoke and grit should be placed as a statutory duty on the local authorities.

(11) Local Authorities should be required to submit annual reports on their progress in smoke abatement to the appropriate Minister.

(12) Penalties for smoke offences should be increased.

Recommendations—Other

(1) The following documents should be prepared and issued by the British Standards Institution.

(*a*) codes of practice indicating the extent to which smoke can be reduced with good practice, and the means of securing such reductions.

(*b*) Standard specifications for smoke indicators, recorders and alarms.

(2) The British Standards Institution should also consider devising simpler standard methods of sampling flue gases to determine grit emissions.

(3) Stoking should be recognized as an operation requiring skill and, firemen should be properly trained and remunerated.

(4) The Government Loan Scheme for approved fuel-saving equipment in industry should be extended to include equipment installed for the purpose of reducing air pollution.

(5) Consideration should be given to allowing the whole of the capital cost of new plant and equipment installed to save fuel and to prevent smoke to be charged against revenue for tax purposes in the year in which the expenditure is incurred.

(6) The most efficient practicable methods of removing sulphur from flue gases should be adopted at all new power stations in or near populated areas.

(7) The factor of pollution should be taken into account when future schemes for the electrification of the railways are being considered and the programme of electrification should be accelerated and extended. The changeover from steam to diesel shunting locomotives should be accelerated.

(8) The present law for the control of pollution by motor vehicles should be more rigorously enforced.

(9) The prevention of domestic smoke will require the replacement of bituminous coal now used in domestic premises in the "black areas" by smokeless fuel, and also by the provision of new appliances, fitted with easy means of ignition, in which such fuels can be burnt satisfactorily. This should be secured by the progressive extension of smokeless zones and smoke control areas as increased supplies of smokeless fuels are made available.

(10) The British Standards Institution should prepare specifications and methods of testing for coke for household use and for domestic solid fuel appliances.

(11) Clean air should be the declared national policy and it should be recognised both by the Government and the nationalized fuel industries as an essential element in fuel policy in the future.

(12) Local authorities should employ adequate smoke-control staffs with the proper training and technical qualifications.

(13) Arrangements should be made to secure effective co-ordination as between local authorities in the black areas and especially in Greater London.

(14) Development and research work on the many technical problems now outstanding should be undertaken or accelerated.

(15) A "Clean Air Council" should be established to co-ordinate and encourage research work and to review the progress made in implementing any new legislation.

The Cost of Pollution

This Appendix arrives at the following main conclusions:

(1) The direct costs of pollution to which figures can be put ("however hazardous") are as follows:

	£*m. per annum*
Laundry	25
Painting and decorating ..	30
Cleaning and depreciation of buildings other than houses	20
Corrosion of metals	25
Damage to textiles and other goods	52·5
	152·5

It is considered that these figures are under-estimates, and as certain items have been omitted, it is concluded that the direct costs of air pollution are *of the order of at least* £150 *million a year.*

(2) The "loss of efficiency." The following figures are given as "a rough guess at possible orders of magnitude": £10 m. a year loss to agriculture; £55 m. a year loss of working efficiency in manufacturing industry; £60 m. a year in other sectors, including transport—altogether "the loss of efficiency resulting from pollution might be as great as the direct costs," but to avoid danger of over-estimates a figure of £100 m. a year is suggested.

(3) The value of the fuel lost under the conditions which produce smoke is estimated to be £25m. to £50m. a year, but it is considered that this should not be included as one of the costs of pollution.

The total estimated cost is given as £250 m. a year, equivalent to £10 per head in the black areas and £5 elsewhere throughout Great Britain, plus the value of the fuel lost.

MAJOR SMOG DISASTERS

The word "smog" was first used by the late Dr. H. A. Des Vœux, founder-president of the N.S.A.S., in 1905, to denote the combination of smoke and natural fog that in urban areas may have disastrous consequences. There are numerous cases of smog conditions resulting in a marked rise in mortality and morbidity from respiratory disorders and consequential cardiac failure. Among these incidents are the following.

London, 1873. Rise in bronchitis deaths, compared with the previous week, of 268.

London, 1880. Rise in bronchitis deaths, compared with the previous week, of 692.

London, 1891. Rise in bronchitis deaths, compared with the previous week, of 572.

Glasgow, 1909. Average number of deaths in the 3 weeks prior to the fog were 57 per week. During 5 weeks of fog or haze the deaths per week were: 138, 233, 171, 198 and 137.

Manchester and Salford, 1930–31. In December, with no fog, there were 137 respiratory disease deaths. In January there were 9 days heavy fog and 592 deaths.

Meuse Valley, 1930. 60 deaths attributed to fog, the death rate rising to 10·5 times the normal. Many cattle had to be slaughtered.

London, 1948. Bronchitis deaths in week before fog, 73; in the week of fog, 148.

Donora, U.S.A., 1948. 18 deaths in a population of 14,000. 42 per cent of the population were estimated to have suffered from illness.

London, 1952. The fog developed on Friday, 5th December and continued until 8th December. Estimated total of 4,000 deaths in the Greater London area. In the Administrative County only deaths from bronchitis rose from 121 to 872, and from heart and circulatory diseases, from 318 to 801.

London, 1956. 1,000 additional deaths attributed to January fog in the Greater London area. (*B.M.J.*, 31 *March*, 1956.)

Principal References

Mortality and Morbidity during the London Fog of December, 1952. Ministry of Health Public Health Report No. 95. (This report contains a section on "Previous Fog Incidents," with a statistical appendix for those in London.)

Les Problèmes de Pollution de l'Atmosphère, Batta, Firket and Leclerc, Liège, 1937.

Air Pollution in Donora, Pa. Public Health Bulletin, No. 306, Federal Security Agency, Public Health Service, Washington.

ESTIMATES OF POLLUTION

The following table of pollution discharged annually in the U.K. is based on a table of estimates for 1953 given in the Beaver Report. Figures are in millions of tons, those in brackets being the quantity of fuel burned or carbonized in each class.

	Smoke	*Grit*	*Sulphur Dioxide*
Raw Coal Uses:			
Domestic (36·8)	0·9	0·1	0·9
General Industry (64·6)	0·8	0·3(*a*)	1·8
Electricity generation (36·7) ..	small	0·3	1·0
Railways (13·8)	0·3	0·1	0·4
Coke Ovens (25·9)	small	small	0·1
Gas Works (27·2)	small	small	0·2
Coke Uses (14·7) (*b*)	nil	small	0·4
Oil Uses (9·0) (*c*)	small	nil	0·4
Totals	2·0	0·8	5·2

(*a*) Including grit from industrial furnaces other than steam raising.

(*b*) Excluding consumption in gasworks and blast furnaces.

(*c*) Including diesel, gas and fuel oils and creosote-pitch mixture.

THE CLEAN AIR CASE

A Synopsis for the Guidance of Speakers, Writers, Teachers, etc.

1. Historical Background. Growth of the air pollution problem and efforts to abate it, from 1273 to the present day. (*See History table.*)

2. Nature, Sources and Causes. Smoke: Due to incomplete combustion; consists of fine carbonaceous particles and tarry droplets. (For quantities produced, *see Table.*) Note that combustible gases escaping when smoke is produced bring the total fuel losses to an equivalent of nearly 10 million tons of coal a year.

Gases: Sulphur dioxide the most harmful. Also carbon monoxide, and noxious gases and fumes from chemical processes.

Grit and dust: Mainly from industrial sources, e.g., pulverized coal and high-draught furnaces.

3. Extent and Behaviour of Pollution. Measurement of floating and deposited impurities, sulphur dioxide, and of light values. The Investigation under the Fuel Research Station, D.S.I.R. (*q.v.*)

4. Fog. Natural and smoke fogs, their formation and characteristics. The London, 1952 and other lethal smogs.

5. Effects. *Health:* Effects on respiratory system. Effects due to obstruction of natural light. Possible relationship with lung cancer. Psychological and social consequences of life in smoke-ridden environment. Effects of smog are the result of infrequent high concentrations of pollution, whereas the insidious action of "normal" pollution take place continuously.

Plant Life: Principal factors injurious to vegetation are: loss of sunlight, blocking of stomata by deposits, direct attack by chemicals, acidification of soil. Indirect effect on grazing animals through deterioration of herbage, or of poisoning in the case of fluoride pollution.

Materials: Corrosion or erosion of metals, stone, fabrics, leather, etc.

Visibility: Loss of visibility due to smoke haze and smog affecting air and surface transport.

Costs: See information at end of section on the Beaver Report.

6. Prevention. *Industrial Smoke:* calls for correct equipment, maintenance and operation of plant. Value of mechanical stoking. Uses of oil, gas, electricity and smokeless solid fuel. Importance of training and certification of stokers. Instrumentation, smoke alarms, etc. Need for all-round fuel efficiency. *Dust and grit:* Use of arrestors of appropriate types: cyclones, wet washing, electrostatic precipitators. *Sulphur:* removal by coal washing, flue gas-washing and other possible means.

Domestic: By use of smokeless fuels—gas, electricity, oil or solid. Types of solid fuel: gas and hard coke, anthracite,

Welsh steam coals, Coalite, Rexco, Phurnacite. Need for efficient appliances. Central and district heating, whole-house warming, off-peak electrical methods, etc. Smokeless zones, including smokeless estates.

Railways and Roads: Use of diesels and electricity for the former. Need for efficient combustion and good maintenance in road vehicles, possible development of catalytic afterburners and other devices.

7. Policy. Law, etc. The present law—Clean Air Act, 1956, Public Health Act, 1936, local Acts, Road Traffic Act, 1930, Alkali, etc., Works Regulation Act, 1906, and Orders, etc. The Beaver Report an its proposals (*q.v.*). Responsibilities of local authorities and central Government. Smokeless zones and smoke control areas. Work of the D.S.I.R., Alkali Inspectorate and other organizations. Educational and publicity work of the National Smoke Abatement Society.

THE HISTORY OF AIR POLLUTION IN GREAT BRITAIN

A Chronological Table

1273 Use of coal prohibited in London as being "prejudicial to health."

1306 Royal Proclamation prohibiting artificers from using sea-coal in their furnaces. Record of the execution of one offender.

1307 Commission of Inquiry appointed to "inquire of all such who burnt sea-coal in the city or parts adjoining, and to punish them for the first offence with great fines and ransoms, and upon the second offence to demolish their furnaces."

1578 Queen Elizabeth I "findeth hersealfe greately greved and anoyed with the taste and smoke of the sea-cooles."

1648 Petition of Londoners to Parliament to prohibit the importation of coal from Newcastle on account of the injury they experienced.

1661 John Evelyn submitted his "Fumifugium, or the Smoake of London Dissipated," to Charles II.

1819 Committee appointed by Parliament to inquire how far persons using steam engines and furnaces could erect them in a manner less prejudicial to public health and comfort.

1843 A Select Committee recommended the introduction of a Bill dealing with nuisances from furnaces and steam engines.

1845 Another Select Committee reported that it was not desirable to extend the provisions of an Act beyond furnaces used for steam generation.

1847 The Town Improvement Clauses Act contained a section dealing with factory smoke.

1853-6 Smoke Abatement Acts relating to the Metropolitan area.

1866 The Sanitary Act empowered sanitary authorities to take action in cases of smoke nuisances.

1875 The Public Health Act containing a smoke abatement section on which legislation to the present day has been based.

1881 Smoke abatement Exhibition at South Kensington organized by the Public Health and Kyrle Societies.

1882 Formation of the National Smoke Abatement Institution.

1891 The Public Health (London) Act.

1899 Formation of the Coal Smoke Abatement Society, led by Sir William Richmond, R.A. and Dr. H. A. Des Voeux (concerned mainly with London).

1909 Sheffield smoke abatement Exhibition, at which was set up the Smoke Abatement League of Great Britain (mainly for the provinces and centred later in Manchester and Glasgow).

1912 International smoke abatement Exhibition in London, organized by the Coal Smoke Abatement Society, leading to the formation of a Committee for the Investigation of Atmospheric Pollution (now under the auspices of the D.S.I.R.).

1913 Smoke abatement Bill introduced in the House of Commons by A. G. C. Harvey, M.P.

1914 Smoke abatement Bill introduced in the House of Lords by Lord Newton. Withdrawn on the appointment of a Departmental Committee to investigate the problem.

1920 Committee re-formed after the war with Lord Newton as Chairman.

1921 Publication of the Final Report of the Newton Committee.

1926 Public Health (Smoke Abatement) Act by which the 1875 and 1891 Acts were amended and extended.

1927 Establishment of first regional committees of local authorities.

1929 Amalgamation of the Coal Smoke Abatement Society and Smoke Abatement League of Great Britain to form the National Smoke Abatement Society. First publication of a journal (now *Smokeless Air*) devoted to air pollution.

1936 Public Health Act, in which were included the provisions of the smoke abatement Act of 1926.

1946 Simon Report on Domestic Fuel Policy, recommending, *inter alia*, measures for domestic smoke prevention.

1946 First smokeless zone and prior approval legislation (Manchester Corporation Act).

1951 First smokeless zone established (in Coventry).

1952 Ridley Report on "Policy for the Use of Fuel and Power Resources," recommending, *inter alia*, measures for smoke prevention.

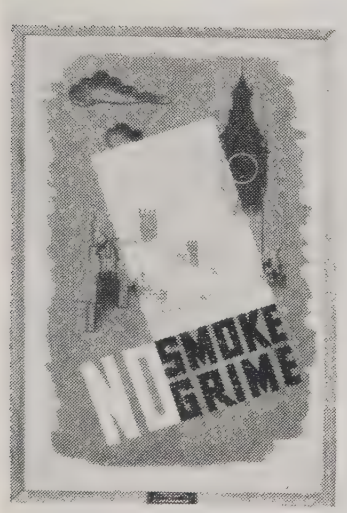
1952 London smog disaster, the most serious for many years, with a death roll of 4,000 (*q.v.*).

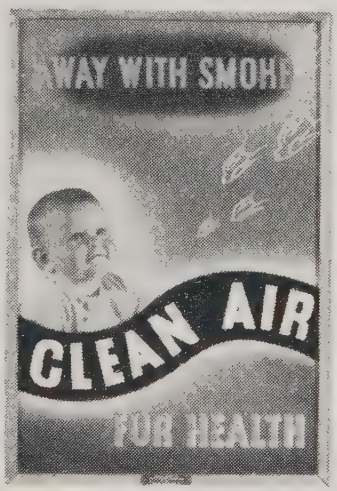
1953 Beaver Committee on Air Pollution set up by the Government and published an Interim Report.

1954 Final Report of the Beaver Committee.

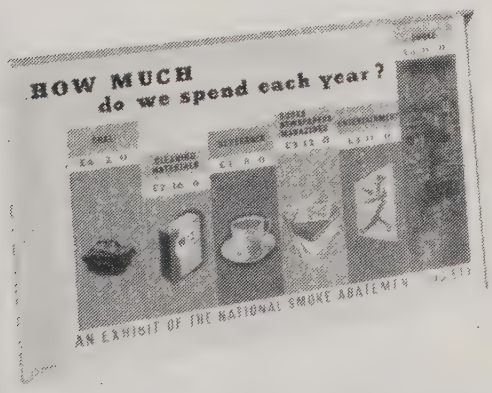
1954 A Clean Air Bill introduced by Gerald Nabarro, M.P., and withdrawn (4th Feb., 1955) on Government undertaking to introduce their own Bill.

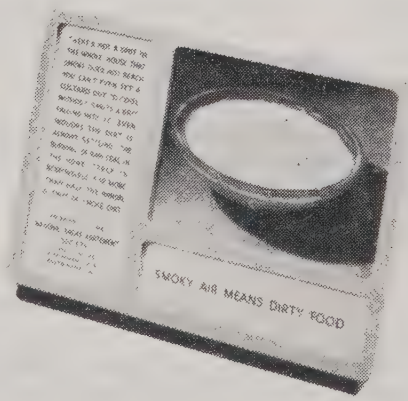
1956 Clean Air Act.











Some of the Society's Exhibits. Above are framed originals of poster competition entries. Below, two examples of table exhibits. (*See page* 46)

RECENT PAPERS AND REPORTS

A Selected List

GENERAL

Air Pollution Control Association (U.S.A.). *Proc. of 49th Annual Meeting.*

Air Pollution Handbook. Magill, P. L., et al. McGraw-Hill, 1956. £5 12s 6d.

Air Pollution in North America. Martin, J. F. U.K. Scientific Mission. Memo. No. 21/56.

Clean Air Supplement. Leeds Chamber of Commerce Journal. 1956. 5s.

Clean Air: The Next Chapter. Sir H. Beaver. Des Voeux Memorial Lecture. *Proc. N.S.A.S. Conference, Southport*, 1956. Reprint 1s.

Clean Air: The Duties of Sanitary Inspectors and Local Authorities. Saword, A. C. Paper to R. Soc. Health, Blackpool Congress, April, 1956.

Chemist and Air Pollution, The. Nonhebel, G. R. Inst. Chem. J. **80**, 64-67, 1956.

Colliery Refuse and Mining Subsidence. Lessing, R. Paper to Inter. Union for Protection of Nature, Edinburgh, 20th June, 1956.

Disposal of Colliery Wastes. Lessing, R. Paper to a Conf. of the Society of Chem. Industry, 18th April, 1956.

MEASUREMENT

Atmospheric Pollution on Teeside. Basford, A. H. Paper to R. Soc. Health, Middlesbrough, 29th June, 1956.

Investigation of Atmospheric Pollution. Report of Observations 1944-1954. 27th Report. D.S.I.R., H.M.S.O., 1955.

Town Survey (Walthamstow, Watford and Wandsworth). Clinch, H. G. London and Home Counties Smoke Abatement Advisory Council, 1956.

EFFECTS

Air Pollution as it Affects Forestry. Grayson, A. J. Paper read to the British Assoc., Sheffield, 1956.

Clean Air and Family Health. Akester, Miss J. M. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s. 6d.

Clinical Significance of Dirty Air, The. Lawther, P. J. *Proc. N.S.A.S. Conf., Southport*, 1956. Reprint 6d.

Corrosion Aspects of Air Pollution. Greenburg, L. and Jacobs, M. B., Amer. Paint J., 11th July 1955, **39**, 64.

Hazards to Man of Nuclear and Allied Radiations. Med. Research Council Report. H.M.S.O., 5s. 6d.

Health Aspects of Air Pollution from Road Vehicles, The. Howell, Handley B. *Proc. N.S.A.S. Conf., Southport*, 1956. Reprint 6d.

London Fog of January, 1956. Logan, W. P. D. Brit. Med. J., 31st Mar., 1956.

Nuclear Explosions and Their Effects. Defence Science Organization, Gov. of India. Publications Div., Ministry of Information, Delhi, 7s. 6d.

Quest Into the Environmental Causes of Cancer of the Lung, A. Hueper, W. C. Public Health Monograph, No. 36. U.S. Dept. of Health, Educ. and Welfare. Supt. of Documents, U.S. Gov. Printing Office, Washington, D.C. 45 cents.

Toxicity of Some Atmospheric Pollutants. Pattle, R. E., and Collumbine, H. Brit. Med. J., 20th Oct., 1956.

THE LAW

Clean Air Act, 1956. 4 and 5 Eliz. 2. Ch. 52. H.M.S.O., 1s 9d.

Clean Air Act, The. Address by Powell, J. Enoch. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s 6d.

Clean Air: The Smoke Control Areas (Authorised Fuels) Regulations, 1956. Statutory Instruments, 1956, No. 2023. H.M.S.O., 2d.

Local Authorities and the Clean Air Act. I. Goulden, Ald. G. H. **II.** Cass, H. V. **III.** Semple, Prof. A. B. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s 6d.

Memorandum on Miscellaneous Provisions, Clean Air Act, 1956. Ministry of Housing and Local Gov. H.M.S.O., 8d.

Memorandum on Smoke Control Areas, Clean Air Act, 1956. Ministry of Housing and Local Gov. H.M.S.O., 1s. 3d.

Model Byelaws, Amendment to: Series IV Buildings (1953 Edition). This amendment deals with a byelaw governing the installation of smokeless fuel appliances. H.M.S.O., 2d.

INDUSTRIAL

Alkali, etc., Works, 92nd Report, 1955. Ministry of Housing and Local Gov. H.M.S.O., 2s.

Clean Air Act and Industry, The. Kennedy, W. B. and Dickie, W. J. Papers read at Conference under auspices of Inst. of Fuel, at last year's Fuel Efficiency Exhibition.

Conference on Oil Firing, Proc. of. Combustion Eng. Assoc. 12th April, 1956.

Density of Washed Plumes from Power Stations, The. Nonhebel, G. *Smokeless Air*, Spring, 1956, **26**, 182.

Examination of Plans for New Industrial Chimneys. Nonhebel, G. Sanitarian, Feb., 1957, **65**, 241.

Formation of Sulphur Trioxide in Flue Gases. Crumley, P. H. and Fletcher, A. W. J.Inst. Fuel, August, 1956, **29**, 322.

Smoke Reduction and Fuel Efficiency by Measurement and Control. Frew, Rear-Admiral Sir Sidney. *Smokeless Air*, Spring, 1956, **26**, 176.

Steam and Power in the Gas and Coking Industries. Clark, L. J. J.Inst. Fuel, March, 1956, **29**, 106.

DOMESTIC

Conference on Domestic Heating, Proc. of. Vols. I and II. Inst. of Fuel.

Domestic Use of Coke. Coley, E. H., J. Inst. Fuel, August, 1956, **29**, 333.

Field Comparison of the Coal and Coke Consumption of an Inset Open Fire with Large Back-boiler. Danter, E., J. Inst. Fuel, July, 1956, **29**, 282.

Opportunities (Clean Air and the Housewife). Ledeboer, Miss Judith. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s. 6d.

Smokeless Fuel in the Home (Clean Air and the Housewife). Courtney, Mrs. Mary. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s. 6d.

FUEL

Central Electricity Board, 8th Report and Accounts, 1955-56. H.M.S.O., 10s. 6d.

National Coal Board, Report and Accounts, 1955. Two Vols.: Report, 3s.; Accounts, 7s.

Developments in the Production of Solid Smokeless Fuel. Jones, Dr. W. Idris. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s 6d.

Economic Use of Industrial Fuel Oil, The. Bookey, J. T. B., John D. Troup, Ltd., 90 High Holborn, W.C.1. 6s.

Fuel Research, 1955. Report of the Fuel Research Board. H.M.S.O., 4s.

Gas Council 7th Report, 1955-56. H.M.S.O., 7s.

Special Study of Sulphur Removal and Recovery from Fuels. J. Inst. Fuel, March, 1956, **29**, 138.

Symposium on Coke. Institution of Gas Engineers.

Trends in Fuel Consumption for Household and Domestic Uses in Europe. U.N. Economic Commission for Europe. H.M.S.O., 3s 6d.

Way to Clean Air, The. Welman, D. P. *Proc. N.S.A.S. Conf., Southport*, 1956. 12s. 6d.

ROAD VEHICLES

Exhaust Gases from Motor Vehicles.

(*a*) **The Composition of Exhaust Gases from Motor Vehicles.** Fitton, A.

(*b*) **Some Measurements of Carbon-monoxide in the Air of London.** Wilkins, E. T.

J. Royal Soc. Health, Oct., 1956, **76**, 664.

Problem of Engine Exhausts from Road Vehicles, The. Lister, L. John S. Owens Prize Essay, Royal Soc. Health, 1955.

GUIDE TO PUBLICATIONS

This list of available books, reports and pamphlets on smoke prevention, atmospheric pollution and fuel usage is issued by the National Smoke Abatement Society as a reference guide for readers. It may also be used for ordering the publications which may be obtained either direct from the Society, or other bookseller.

Prices in brackets include postage and packing, which must be included when ordering by post, except in the case of orders over £2, which will be sent post-free. If a number of items are ordered together excess postages will be refunded.

Information about older, out-of-print, and overseas publications may be obtained from the Society on request. Most of these are in the Society's library and can be consulted, or in some cases borrowed for short periods, by arrangement.

(*Except where otherwise stated the publisher is the Society. H.M.S.O.=H.M. Stationery Office. The publications are numbered and sectional cross-references are given where applicable*).

I. THE LAW

Code No.

82. **Clean Air Act, 1956.** The latest Statute governing smoke, containing sections on dark smoke, smoke from furnaces, grit and dust from furnaces, smoke control areas, smoke nuisances, special cases, clean air council and miscellaneous provisions. (H.M.S.O., 1956) 4 & 5 Eliz. 2 Ch.52. 1s. 9d. (1s. 11d.)

83. **Clean Air Act, 1956. Memorandum on Smoke Control Areas.** (H.M.S.O., 1956) 8d. (10d.)

84. **Clean Air Act. 1956. Memorandum on Miscellaneous Provisions.** (H.M.S.O., 1956) 8d. (10d.)

85. **Amendment to Model Byelaws.** Series IV Buildings (1953) Edition. (H.M.S.O., 1956) 2d. (4d.)

86. **Clean Air: The Smoke Control Areas (Authorized Fuels) Regulations, 1956.** Statutory Instruments, 1956 No. 2023. (H.M.S.O., 1956). 2d. (4d.)

80. **The Clean Air Act, 1956. A Descriptive Summary.** 4s. 6d. per dozen, post free. 6d. single copy.

81. **Smoke Control Areas.** An Article, by Arnold Marsh, reprinted from the "Clean Air" Supplement of the Journal of the Leeds Chamber of Commerce. 2s. 0d. per 12 or 12s. 6d. per 100, post free. 2d. (4d.) single copy.

1. **The Law of Smoke Nuisances, by W. R. Hornby Steer.** Text book on the law for England and Wales prior to the Clean Air Act, 1956. With tables of cases, statutes and relevant sections of the Public Health Acts, etc. Cloth 5s. (5s. 4d.); Paper cover 3s. (3s. 3d.)

(See also III, 71)

II. CONFERENCE PROCEEDINGS & REPRINTS

2. **London Conference, 1943.** On measures for smoke prevention in relation to plans for post-war reconstruction. 1s. (1s. 2d.)

3. **Joint Conference, 1945.** Joint conference with the Institute of Fuel. Papers on Atmospheric Pollution, Coal and Civilization, Small Scale Steam Raising Plant Cleaning Flue Gases from Electricity Generating Stations, Industrial Furnaces, Smoke Abatement in the Clay Industries, Atmospheric Pollution from Domestic Appliances, Railway Smoke. Special price 1s. (1s. 3d.)

4. **Brighton Conference, 1946.** Papers and discussions on Smoke Prevention in New Houses, Proposals for new Industrial Legislation, Future Policy. 2s. (2s. 2d.)

5. **Edinburgh Conference, 1947.** Papers on Area Organization, the Work of Government Departments, Domestic Smoke Policy, Grit and Sulphur Emission Problems, Smoke and the Public Health, Atmospheric Pollution. 4s. 6d. (4s. 9d.)

6. **Cheltenham Conference, 1948.** Address by the Minister of Fuel and Power, Interim Report on National Survey of the Sources and Incidence of Pollution, Progress Reports, Problems of Publicity, Smoke Prevention and Town Planning, "Brains Trust" session 3s. 6d. (3s. 8d.)

7. **Address by the Minister of Fuel and Power,** the Rt. Hon. Hugh Gaitskell, M.P. Reprinted from the Cheltenham Conference Proceedings, 1948 6d. (8d.)
8. **National Survey of Atmospheric Pollution,** Interim Report. A. J. Cousin. A report of the Society's comprehensive survey based on returns from over 700 Local Authorities. Reprinted from 1948 Conference Proceedings. 1s. (1s. 2d.)
9. **Smoke Abolition and the Public: Problems of Education and Propaganda.** Leslie Hardern. Reprinted from 1948 Conference Proceedings. 6d. (8d.)
35. **Harrogate Conference, 1949.** Address by the Parliamentary Secretary, Ministry of Health. Progress Reports, Problem of Burning Colliery Spoilbanks, Work of the Fuel Research Station and an Outsider's view of the Case against Smoke. 4s. (4s. 9d.)
42. **Margate Conference, 1950.** The Des Voeux Memorial Lecture—"Towards the Better Use of Coal," and papers on Atmospheric Pollution and Health, Smoke Prevention as applied to New Housing and Railway Smoke. 6s. (6s. 3d.)
47. **Blackpool Conference, 1951.** The Des Voeux Memorial Lecture—"Power and Waste in their Social Setting," and papers on the Smokeless Operation of Small Steam Raising Plant, Policies for the Prevention of Industrial Air Pollution and Smoke Prevention in the Home—The Woman's Viewpoint. 7s. 6d. (7s. 9d.)
52. **Portsmouth Conference, 1952.** The Des Voeux Memorial Lecture—"Smoke and the Law," Progress Reports, Incentives for Smoke Prevention and Pollution. Problems in the Iron and Steel Industry. 6s. (6s. 2d.)
61. **Glasgow Conference, 1953.** The Des Voeux Memorial Lecture—"Atmospheric Pollution in Relation to Preventive Medicine," and papers on the London Fog Disaster, Smokeless Zones, Production, Use and Availability of Solid Smokeless Fuels and the Efficient and Smokeless Combustion of Fuel Oils. 7s. 6d. (7s. 9d.)
70. **Scarborough Conference, 1954.** The Des Voeux Memorial Lecture—"Air Pollution and Plant Life," Address by Sir Hugh Beaver, Presidential Address: "The Coal Crisis and the Society," papers on Rail Transport and Smoke Abatement, the Industrial Uses of Gas and the Industrial Uses of Electricity. 7s. 6d. (7s. 10d)
73. **Bournemouth Conference, 1955.** The Des Voeux Memorial Lecture—"The Destructive Effects of Air Pollution on Materials," Presidential Address, Any Questions—The Government's Clean Air Bill, Progress in Domestic Heating by Centralized Methods; Papers on Local Authorities the Beaver Report and the Clean Air Bill. (Out of Print).
87. **Southport Conference, 1956.** The Des Voeux Memorial Lecture—"Clean Air: The Next Chapter," Presidential Address, Progress Reports, Local Authorities and the Clean Air Act, Clean Air and the Housewife. 12s. 6d. (12s. 9d.)
88. **The Clinical Significance of Dirty Air.** Dr. P. J. Lawther. Reprinted from the Proceedings of the Southport Conference, 1956. 6d. (8d.)
89. **The Health Aspects of Air Pollution from Road Vehicles.** Dr. Handley B. Howell. Reprinted from the Proceedings of the Southport Conference. 6d. (8d.)

REPRINTS—DE VOEUX MEMORIAL LECTURES

45. **Towards the Better Use of Coal.** Dr. D. T. A. Townend. The first Des Voeux Memorial Lecture by the Director-General of the British Coal Utilization Research Association. Reprinted from the 1950 Conference Proceedings. 2s. 6d. (2s. 8d.)
48. **Power and Waste in their Social Setting.** Dr. J. Bronowski. The second Des Voeux Memorial Lecture by the Director, Research Establishment, National Coal Board. Reprinted from the 1951 Conference Proceedings. 1s. (1s. 2d.)
63. **Air Pollution in Relation to Preventive Medicine.** Sir John Charles. The Fourth Des Voeux Memorial Lecture by the Chief Medical Officer, Ministry of Health. Glasgow Conference, 1953. Reprints only available.
77. **Air Pollution and Plant Life.** Sir Edward Salisbury. The Fifth Des Voeux Memorial Lecture by the Director of the Royal Botanic Gardens, Kew. Scarborough Conference, 1954. Reprints only available.
78. **The Destructive Effects of Air Pollution on Materials.** Dr. A. Parker. The Sixth Des Voeux Memorial Lecture by the Director of Fuel Research. Reprinted from the Bournemouth Conference Proceedings, 1955. 1s. 0d. (1s. 2d.)

90. **Clean Air: The Next Chapter.** Sir Hugh Beaver. The Seventh Des Voeux Memorial Lecture by the Chairman of the Government Committee on Air Pollution. Reprinted from the Southport Conference Proceedings, 1956. 1s. 0d. (1s. 2d.)

III. GENERAL

11. **Smoke: The Problem of Coal and the Atmosphere.** Arnold Marsh. A comprehensive text-book on the causes, consequences and means for prevention of smoke. Illustrations and bibliography. (Faber and Faber Ltd., 1947.) 21s. (21s. 9d.)
13. **Smokeless Air.** The Society's quarterly magazine-type journal. News, articles, photographs, comment. 4s. per annum, post free. 1s. (1s. 3d.)
53. **Atmospheric Pollution: Its Origins and Prevention.** A. R. Meetham. Fully illustrated. (Pergamon Press Ltd., 1952.) 2nd Edition, 1956. 63s.
58. **Committee on Air Pollution.** The Interim Report of the Beaver Committee appointed in July, 1953 to examine the nature, causes and effects of air pollution and the efficiency of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations. (Cmd. 9011.) (H.M.S.O., 1953.) 1s. 6d. (1s. 8d.)
71. **Committee on Air Pollution.** The Final Report of the Beaver Committee. (Cmd. 9322.) (H.M.S.O., 1954.) 2s. 6d. (2s. 8d.)
66. **Facts about Smoke.** A two colour leaflet for distribution at exhibitions, meetings, etc. £6 10s. per 1,000, 14s. per 100 post free
91. **They Didn't Know What to Do.** Single sheet leaflet for general publicity use. £1 10s. per 1,000, 4s. per 100 post free.
92. **Mortality and Morbidity During the London Fog of December 1952.** Ministry of Health, Reports on Public Health and Medical Subjects, No. 95. (H.M.S.O., 1954.) 2s. 6d. (2s. 8d.)

IV. HISTORICAL

15. **Fumifugium or the Smoake of London Dissipated.** John Evelyn. The famous diarists' well-known tract (1616) reprinted by the Society, with an introduction by Rose Macaulay. Cloth 1s. 6d. (1s. 9d.), paper covers 6d. (8d.)
43. **The Society Comes of Age, 1929-1950.** The Story of the Society reprinted from *Smokeless Air*. Gratis.

V. INDUSTRIAL PROBLEMS

18. **Stokers' Manual.** A practical handbook prepared by the Fuel Efficiency Division of the Ministry of Power. (H.M.S.O., 1945.) 1s. 3d. (1s. 5d.)
36. **The Effect of Certain Factors on the Efficiency of a Hand-Fired, Natural Draught, Lancashire Boiler.** Fuel Research Technical Paper No. 55. A report of the experimental work carried out at the Fuel Research Station on Lancashire Boilers with particular reference to the smoke eliminator doors developed by the Station. (H.M.S.O., 1949.) 1s. 9d. (1s. 11d.)
60. **Industrial Smoke Prevention and National Fuel Policy.** Excerpts from the Report of the Committee on National Fuel Policy for the Use of Fuel and Power Resources. 30s. 0d. per 100 or 5s. 0d. per dozen, post free. Single copies 6d. (8d.)

(See also **II**, 3, 4, 5, 6, 35, 42, 47, 52, 61, 70, 73, 87,; **III**, 11, 53; **VII**, 55)

VI. DOMESTIC HEATING

20. **Heating and Ventilation of Dwellings.** The Building Research Board's comprehensive survey, with much material of smoke prevention interest. Post-War Buildings Studies No. 19. (H.M.S.O., 1945.) 5s. 6d. (6s. 1d.)
21. **Domestic Fuel Policy.** Report of the Minister of Power's Advisory Council (the Simon Report). Its recommendations relating to smoke prevention are of exceptional importance. (Cmd. 6762, H.M.S.O., 1946) 1s. 0d. (1s. 2d.)
23. **Domestic Heating in America.** An important supplement to the study of British heating methods and standards. (H.M.S.O., 1946.) 3s. 0d. (3s. 5d.)

37. **District Heating in American Housing.** National Building Studies, Special Report No. 7 by the Ministry of Power. The report of a mission to the U.S.A. in 1947. Fully illustrated and containing statistical tables (H.M.S.O., 1949). 4s. 6d. (5s. 1d.)
44. **Housing Manual, 1949.** The official recommendations on housing practice. The section on the heat installation may be regarded as the basis of present-day smoke prevention policy. (H.M.S.O., 1949). 3s. 6d. (4s. 2d.)
59. **Domestic Smoke Prevention and National Fuel Policy.** Excerpts from the Report of the Committee on National Fuel Policy for the use of Fuel and Power Resources. 30s. 0d. per 100 or 5s. 0d. per dozen, post free. Single copies 6d. (8d.)
62. **Solid Smokeless Fuels.** The production, use and availablity of solid smokeless fuels. Papers reprinted from the Glasgow Conference Proceedings, 1953. (1s. 9d.)
79. **Electric Floor Warming.** J. W. Moule. Paper reprinted from the Bournemouth Conference Proceedings, 1955. 6d. (8d.)

(See also **II**, 2, 3, 4, 5, 6, 35, 42, 47, 52, 61, 70, 73, 87; **III**, 11, 53; **VII**, 55, 67)

VII. TECHNICAL & SCIENTIFIC STUDIES

25. **Reduction of Smoke from Merchant Ships.** Fuel Research Technical Paper No. 54. A full report of voyage trials of the Fuel Research Station's smoke eliminator. (H.M.S.O., 1947). 1s. 3d. (1s. 5d.)
26. **Atmospheric Pollution in Leicester.** Report of the important scientific survey of the behaviour of pollution in the atmosphere. Atmospheric Pollution Research Technical Paper No. 1. (H.M.S.O., 1945.) 6s. 0d. (6s. 5d.)
27. **Smoke and its Measurement.** Fuel Research Technical Paper No. 53. On the correlation of optical density with the nature and quantity of smoke from a hand-fired Lancashire boiler. (H.M.S.O., 1945.) 1s. 3d. (1s. 5d.)
38. **The Work of the Fuel Research Station.** Dr. A. Parker. Reprint from 1949 Conference Proceedings by the Director of Fuel Research. Illustrated. 1s. 0d. (1s. 2d.)
74. **The Investigation of Atmospheric Pollution.** Pamphlet describing aims and methods of the investigation. (Fuel Research Station). Gratis (3d.)
39. **The Investigation of Atmospheric Pollution.** 26th Report by the Fuel Research organization of the Department of Scientific and Industrial Research co-ordinating local observations of atmospheric pollution, 1939-44. (H.M.S.O., 1949). 2s. 6d. (3s. 0d.)
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55. **Policy for the Use of Fuel and Power Resources.** The Report of the Ridley Committee on National Fuel Policy. Appendix IV of this Report deals with smoke abatement. (Cmd. 8647, H.M.S.O., 1952.) 6s. 6d. (7s. 0d.)
67. **District Heating.** The Report in two volumes of the Heating and Ventilation (Reconstruction) Committee of the Building Research Station in sufficient detail to be of immediate practical help in the designing of an actual district heating installation. (H.M.S.O., 1953.) Parts I to V (Post-War Building Studies No. 31). 7s. 6d. (8s. 1d.)
    Part VI (Post-War Building Studies No. 32). 10s. 0d. (10s. 10d.)

(See also **II**, 3, 6, 8; **III**, 92; **V**, 36)

93. **Ringelmann Smoke Chart** (with instructional leaflet). Chart for measuring smoke density. (Charles Griffin & Co. Ltd.)
    1s. 2d. each, 3 for 2s. 6d., 6 for 4s. 2d., 12 for 7s. 2d., including postage.

VIII. BRITISH STANDARDS PUBLICATIONS

49. B.S.1747:1951. **Deposit Gauges for Atmospheric Pollution.** Gives details of construction, siting, operation, analysis of deposited matter and statement of results, together with a standard report form for entering monthly results. 2s. 6d. (2s. 8d.)

94. B.S.2740:1956. **Simple Smoke Alarms and Alarm Metering Devices.** The alarms specified in this standard are based on the principle of a beam of light across a chimney falling on a photo-electric cell. The obscuration of this beam by smoke operates the alarm. 3s. 0d. (3s. 2d.)
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IX. FOR TEACHERS

33. **The Smoke Problem and Science Teaching.** Experiments and material for introducing smoke abatement instruction into general science lessons. 3d. (5d.)

X. OTHER INDUSTRIAL POLLUTION

68. **Annual Report on Alkali, etc., Works, 1953.** The most informative and up-to-date source of the situation and progress in respect of pollution from chemical and other special industrial processes. 90th Report. (H.M.S.O.) 2s. 6d. (2s. 8d.)
76. **Annual Report on Alkali, etc., Works, 1954.** 91st Report. (H.M.S.O.) 3s. 0d. (3s. 2d.)
97. **Annual Report on Alkali, etc., Works, 1955.** 92nd Report. (H.M.S.O.) 2s. 0d. (2s. 2d.)

DIRECTORY OF ORGANIZATIONS

Air Pollution Foundation, 704 South Spring Street, Los Angeles 14, Calif., U.S.A.

Alkali Inspectorate:
Chief Inspector, Ministry of Housing, Local Government and Welsh Affairs, Whitehall, London, S.W.1. (Whitehall 4300, Ext. 422 and 645).
Deputy Chief Inspector, do.
District Inspectors:
District I, 76 Elton Road, Darlington. (Darlington 5795).
District II, 21 Hillcrest Road, Great Crosby, Liverpool 23. (Great Crosby 2439).
District III, 24 Victoria Road, Sheffield 10. (Sheffield 62954).
District IV, 40 Kingsdown Road, Senneleys Park, Birmingham 31. (Birmingham, Priory 2994).
District V, 53 Woodstock Road, Bristol 6. (Bristol 46336).
District VI, 36 Spring Street, Hyde Park, London, W.2. (Ambassador 9925.)
District VII, 2 Ashwood Avenue, Sale, Manchester. (Sale 9800.)
Chief Inspector for Scotland, Department of Health for Scotland, St. Andrew's House, Edinburgh 1. (Edinburgh Central 2500.)

America, Air Pollution Control Association of, 609 Station Street, Wilmerding, Pa.

America, Office of Air and Stream Pollution, Bureau of Mines. U.S. Department of the Interior, Washington 25, D.C.

Architects and Surveyors, Incorporated Association of, 75 Eaton Place, London, S.W.1. (Sloane 5615.)

Architects, Royal Institute of British, 66 Portland Place, London, W.1. (Langham 5721.)

Arts, Royal Society of, 6 John Adam Street, London, W.C.2. (Trafalgar 2366.)

Bristol and West Clean Air Committee, Public Health Department, 48 Queen Square, Bristol, 1. (Bristol 20171.)

British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1. (Euston 2111.)

British Standards Institution, British Standards House, 2 Park Street, London, W.1. (Mayfair 9000.)

Building Centre, 26 Store Street, London, W.C.1. (Museum 5400.)

Building Research Station, Bucknall's Lane, Garston, Nr. Watford, Herts. (Garston 4040.)

Chemical Engineers, Institution of, 56 Victoria Street, London, S.W.1. (Victoria 6161.)

Chemistry of Great Britain and Ireland, Royal Institute of, 30 Russell Square, London, W.C.1. (Museum 1761.)

City and Guilds of London Institute, Technology Department, 31 Brechin Place, London, S.W.7. (Fremantle 1121.)

Civil Engineers, Institution of, Great George Street, London, S.W.1. (Whitehall 4577.)

Coal Board, National, Hobart House, Grosvenor Place, London, S.W.1. (Sloane 3401.)

Coal Utilization Council, 3 Upper Belgrave Street, London, S.W.1. (Sloane 9116.)

Coal Utilization Research Association, British, Randalls Road, Leatherhead, Surrey. (Leatherhead 4411.)
Coke Oven Managers' Association, 1 Cliff Street, Mexborough, Yorks.
Coke Research Association, British, 74 Grosvenor Street, London, W.1. (Mayfair 9736.)
Coking Industry Association, British, 74 Grosvenor Street, London, W.1. (Mayfair 9736.)
Combustion Engineering Association, 6 Duke Street, St. James's, London, S.W.1. (Whitehall 5536.)
Convention of the Royal Burghs of Scotland, 51 Castle Street, Edinburgh. (Edinburgh, Cal. 7558.)
County Boroughs' Association, Town Hall, Oxford. (Oxford 2205.)
County Councils' Association, 66A Eaton Square, London, S.W.1. (Sloane 5173.)
County Councils in Scotland, Association of, 3 Forres Street, Edinburgh. (Edinburgh 34991.)

Electrical and Allied Industries Research Association, British:
Offices and Library, Thorncroft Manor, Dorking Road, Leatherhead, Surrey. (Leatherhead 3423.)
Laboratories, Wadsworth Road, Perivale, Middlesex. (Perivale 9511).
Electrical Development Association, British, 2 Savoy Hill, London, W.C.2. (Temple Bar 9434.)
Electrical Engineers, Institution of, Savoy Place, Victoria Embankment, London, W.C.2. (Temple Bar 7676.)
Electricity Authority, Central:
H.Q., C. E. House, Trafalgar Buildings, London, S.W. 1. (Whitehall 2121.)
London Division, Generation House, 170A Great Portland Street, London, W.1. (Museum 6844.)

Fog Research Unit, Battersea Polytechnic, London, S.W.11. (Macaulay 1031.)
Forest Products Research Laboratory, Princes Risborough, Aylesbury, Bucks. (Risborough 101–2.)
Fuel, Institute of, 18 Devonshire Street, London, W.1. (Langham 7124.)
Fuel Research Station, River Way, Blackwall Lane, Greenwich, London, S.E.10. (Greenwich 3065.)
Scottish Branch: Thorntonhall, Nr. Glasgow. (Glasgow, Busby 1171.)

Gas Council, The, Murdoch House, 1 Grosvenor Place, London, S.W.1. (Sloane 4554.)
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Gas Industries, Society of British, 56 Victoria Street, London, S.W.1. (Victoria 8948.)
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Housing Centre, 13 Suffolk Street, London, S.W.1. (Whitehall 2881.)
Housing Incorporated, Institute of, 50 Tufton Street, London, S.W.1. (Abbey 5067.)

Iron and Steel Federation, British, Steel House, Tothill Street, London, S.W.1. (Whitehall 1030.)
Iron and Steel Research Association, British, 11 Park Lane, London, W.1. (Grosvenor 4751.)
Iron Founders' Association, British, 30 St. James's Square, London, S.W.1. (Whitehall 6866.)

London and Home Counties Smoke Abatement Advisory Council, Westminster City Council Depot, Monck Street, Horseferry Road, London, S.W.1. (Abbey 6817.)
Low Temperature Coal Distillers' Association of Great Britain, P.O. Box No. 21, Chesterfield, Derbyshire. (Bolsover 281.)

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Medical Officers of Health, Society of, Tavistock House South, Tavistock Square, London, W.C.1. (Euston 3923.)
Meteorological Office (Air Ministry), Kingsway, London, W.C.2. (Forecast, Holborn 3434.) (Information, Trafalgar 8811.)
Meteorological Society, Royal, 49 Cromwell Road, London, S.W.7. (Kensington 0730.)
Metropolitan Boroughs' Standing Joint Committee, Westminster City Hall, London, W.C.2. (Trafalgar 7070.)
Midlands Joint Advisory Council for the Abatement of Smoke and Atmospheric Pollution, Public Health Department, Council House, Birmingham 3. (Birmingham Central 7000. Ext. 60.)
Municipal Corporations, Association of, Victoria Station House, London, S.W.1. (Tate Gallery 0764.)
Municipal Engineers, Institution of, 84 Eccleston Square, London, S.W.1. (Victoria 5083.)

National Industrial Fuel Efficiency Service, 71 Grosvenor Street, London, W.1. (Hyde Park 9706.)

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Northern: St. Paul's House, 20/22 St. Paul's Street, Leeds, 1. (Leeds 20046.)
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26 Drumsheugh Gardens, Edinburgh, 3. (Edinburgh 34331/5.)

National Trust for Places of Historic Interest or Natural Beauty, 42 Queen Anne's Gate, London, S.W.1. (Whitehall 0211.)

North-East Derbyshire Smoke Abatement Joint Consultative Committee, Town Clerk's Office, Town Hall, Chesterfield. (Chesterfield 3232.)

Parliamentary and Scientific Committee, 31 Palace Street, London, S.W.1. (Victoria 2608.)
Power, Ministry of, Thames House South, Millbank, London, S.W.1. (Abbey 7000.)
Preservation of Rural England, Council for the, 4 Hobart Place, London, S.W.1. (Sloane 4280.)
Protection of Ancient Buildings, Society for the, 55 Great Ormond Street, London, W.C.1.
Public Health and Hygiene, Royal Institute of, 28 Portland Place, London, W.1. (Langham 2731/2.)
Public Health Engineers, Institution of, 118 Victoria Street, London, S.W.1. (Victoria 3017.)
Public Health Inspectors' Association, 19 Grosvenor Place, London, S.W.1. (Sloane 1770.)

Rural District Councils' Association, 191/7 St. Stephen's House, London, S.W.1. (Whitehall 6641.)

Sanitary Association of Scotland, Royal, 150 St. Vincent Street, Glasgow. (Glasgow Central 6605.)
Scientific and Industrial Research, Department of, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788.) See also Building Research Station and Fuel Research Station.
Scottish Counties of Cities Association, City Chambers, Edinburgh. (Edinburgh Central 2424.)
Sheffield and District Clean Air Committee, Town Hall, Sheffield. (Sheffield 27241.)
Smoke Abatement Society, National,
Central Offices: Palace Chambers, Bridge Street, London, S.W.1. (Trafalgar 6838.)
East Midlands Division: Public Health Inspectors Office, 50 Shakespeare Street, Nottingham. (Nottingham 40584.)
North East Division: Public Health Department, Stanhope Parade, South Shields. (South Shields 1941.)
North-West Division: Health Department, Town Hall, Manchester, 2. (Manchester Central 3377. Ext. 339.)
Scottish Division: City Chambers, Glasgow. (Glasgow Central 9600. Ext. 421.)
South-East Division: Chief Public Health Inspector, Town Hall, Acton, London, W.3. (Acorn 3232.)
West Midlands Division: Public Health Department, 67 Broad Street, Birmingham, 3. (Birmingham Central 7000. Ext. 442.)
Yorkshire Division: Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1. (Leeds 30211. Ext. 29).

Social Service, National Council of, 26 Bedford Square, London, W.C.1. (Museum 8944.)
Solid Smokeless Fuels Federation, 74 Grosvenor Street, London, W.1. (Mayfair 3327.)
Standing Conference of Co-operating Bodies, Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London, S.W.1. (Whitehall 9788.)
Stationery Office, Her Majesty's, York House, Kingsway, London, W.C.2. (Waterloo 6977.)
Structural Insulation Association, 32 Queen Anne Street, London, W.1. (Langham 7616.)

Tees-side Smoke Abatement Committee, Town Clerk's Office, Municipal Buildings, Middlesbrough.
Timber Development Association Ltd., 21 College Hill, London, E.C.4. (City 4771.)
Town and Country Planning Association, 28 King Street, Covent Garden, London, W.C.2. (Temple Bar 5006.)
Town Planning Institute, 18 Ashley Place, London, S.W.1. (Victoria 8815.)

Urban District Councils' Association, 28 Victoria Street, London, S.W.1. (Abbey 6642.)

West Lancashire and Cheshire Regional Smoke Abatement Committee, Gordon House, Belmont Grove, Liverpool, 6. (Liverpool, Anfield 2271.)
West Riding Clean Air Advisory Council, Public Health Department, 25 East Parade, Leeds, 1. (Leeds 30661.)
Women, Electrical Association for, 25 Foubert's Place, London, W.1. (Gerrard 5212.)
Women of Great Britain, National Council of, 36 Lower Sloane Street, London, S.W.1. (Sloane 0619.)
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Director and Secretary: ARNOLD MARSH, O.B.E., M.SC.TECH., M.INST.F.

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Allan W. Ritchie, M.B.E., F.R.S.H.
Alderman F. J. Timmis, O.B.E., J.P.

EXECUTIVE COUNCIL

Elected Divisional Representatives

Scottish Division
Mr. J. F. Anderson, Mr. J. Innes, Councillor W. Monteith.

North West Division
Dr. J. L. Burn, Dr. J. S. G. Burnett, Mr. H. V. Cass, Mr. S. N. Duguid, J.P., Mr. A. O. Johnson, Mr. W. L. Mather, M.C., T.D., Alderman Professor F. E. Tylecote, C.B.E., J.P.

North East Division.
Alderman J. Chapman, M.B.E., Alderman P. S. Hancock, O.B.E., Mr. P. C. G. Isaac.

Yorkshire Division
Dr. I. G. Davies, Mr. J. Goodfellow, Mr. E. J. Winfield, Mr. A. C. Saword.

West Midlands Division
Mr. G. W. Farquharson, Mr. W. L. Kay, Dr. W. R. Martine, O.B.E., T.D.

East Midlands Division
Councillor the Rev. A. Brooke Westcott, Mr. T. H. Turner, Mr. A. Wade, M.B.E.

South West Division
Mr. G. W. Dhenin, Mr. F. J. Redstone.

South East Division
Mr. N. Bastable, Dr. S. G. Burgess, Mr. H. G. Clinch, M.B.E., Dr. R. Lessing, Mr. J. J. Matthews, Mr. G. Nonhebel, Dr. A. J. Shinnie, O.B.E., Mr. L. A. Stroud, Dr. W. C. Turner.

South Wales & Mon. Division
Mr. A. J. Dalton, Mr. I. Lewis, M.B.E.

Appointed Representatives of National Bodies in Membership

Mr. M. G. Bennett (*British Transport Commission*).
Commander C. Buist, M.V.O., R.N. (Ret.) (*Low Temperature Coal Distillers Association*).
Mrs. D. M. Charlton (*Women's Advisory Council on Solid Fuel*).
Dr. T. P. Colclough, C.B.E. (*British Iron and Steel Federation*).
Mr. J. Cooke (*Solid Smokeless Fuels Federation*).
Dr. H. E. Crossley (*Central Electricity Authority*).
Mr. V. W. Dale (*British Electrical Development Association*).
Dr. F. J. Eaton (*Institution of Gas Engineers*).
Dr. G. E. Foxwell (*Institute of Fuel*).
Miss J. Frith, O.B.E. (*Women's Gas Federation*).
Mr. Leslie Hardern (*The Gas Council*).
Mr. H. R. Hodgson (*National Coal Board*)
Mr. H. S. Horsman or Mr. T. C. Melling (*Institute of Electrical Engineers*).
Dr. J. Johnstone Jervis (*British Medical Association*).
Mr. W. R. McGrath (*Public Health Inspectors' Association*).
Mr. J. W. Moule (*South of Scotland Electricity Board*).
Miss V. Norvick or Mrs. J. Falconer (*Electrical Association for Women*).

Chairmen of Committees

Technical: Dr. T. P. Colclough, C.B.E.
Conference: Mr. J. J. Matthews.

Co-opted to Technical Committee of the Executive Council

Dr. J. S. Carter (*Ministry of Housing and Local Government*).
Dr. C. Forrester (*Ministry of Power*).
Mr. J. S. Hales (*British Coal Utilization Research Association*).

Divisional Councils

Scottish

City Chambers, Glasgow (Central 9600, Ext. 421).
President: John Innes.
Hon. Secretary: Norman Fraser.

North West

Health Department, Town Hall, Manchester, 2 (Central 3377 Ext. 339).
Chairman: H. V. Cass, F.A.P.H.I.
Hon. Secretary: H. Moore.

North East

Public Health Department, Stanhope Parade, South Shields (South Shields 1941).
Chairman: Councillor J. A. Brown.
Hon. Secretary: J. Edwards.

Yorkshire

Public Health Department, 12 Market Buildings, Vicar Lane, Leeds, 1 (Leeds 30211 Ext. 29).
Chairman: A. C. Saword, D.P.A., F.R.S.H., F.A.P.H.I.
Hon. Secretary: James Goodfellow, F.R.S.H., A.M.I.P.H.E.

West Midlands

67 Broad Street, Birmingham 1 (Central 7000 Ext. 442).
Chairman: Councillor Eric B. Gibbons.
Hon. Secretary: G. W. Farquharson, M.A.P.H.I.

East Midlands

Public Health Inspectors' Office, 50 Shakespeare Street, Nottingham (Nottingham 40584).
Chairman: Councillor Mrs. Ellen E. Bostock.
Hon. Secretary: A. Wade, M.B.E., F.R.S.H.

South East

Town Hall, Acton, London W.3. (Acorn 3232).
Chairman: Alderman C. H. Smith, O.B.E.
Hon. Secretary: J. J. Matthews, M.R.S.H.

South Wales and Monmouthshire

Chairman: Alderman Dr. C. A. Bence.
Hon. Secretary:

Headquarters Staff

Arnold Marsh, O.B.E., M.SC.TECH. M.INST.F. (*Director and Secretary: Editorial*).
L. Nevard, B.A., F.S.S. (*Administrative Secretary, Advertising, Exhibitions*).
H. C. F. Kapps, B.A.(OXON) (*Information Officer; Librarian*).
Mrs. D. M. Wolfe (*Accounts*).
Mrs. J. W. Tutton.
Mrs. S. M. Burden.
Miss T. Gordon.

TWENTY-SEVENTH ANNUAL REPORT

for the Year ended 31st December 1956

GENERAL REVIEW

The Clean Air Act

The Clean Air Act received the Royal Assent on 5th July, 1956, and its passing was the most important administrative step forward in the prevention of air pollution since the Public Health Act of 1875. The smoke abatement Act of 1926 was of minor importance compared with the more fundamental changes made in both 1875 and 1956. The new law may not go as far as some would have liked, and some of its provisions may prove to be something short of ideal, but such imperfections should not obscure its over-riding importance. Whether it will prove to be as successful as is hoped in achieving clean air now depends very largely on the local authorities who will administer it.

The Act in its final form contains many improvements over the Bill as it was originally introduced. This was achieved as a result of the sound criticism and well-informed amendments made during the Committee stage in the House of Commons, and it is gratifying to report that the Society was able to assist, and to make its views known, along with other interested bodies, in this phase of the passage of the measure through Parliament. Appreciation should be particularly expressed to Mr. Gerald Nabarro, M.P., and to Mr. Arthur Blenkinsop, M.P. and other members of the Opposition in the Commons, and in the House of Lords—which further improved the Bill—to Lord Milner of Leeds, the Bishop of Sheffield and others.

The study of the Bill, with detailed criticism and suggestions, together with briefs and notes, entailed much detailed work for the Society's Technical Committee and the Staff, to which a number of other activities had naturally to be subordinated.

The Government is to be complimented on the absence of delay in bringing the Act into operation. Although some of the more important provisions (control of dark smoke and of grit and dust, etc.) will not come into force until early in 1958 (a delay intended to give industry the opportunity of making necessary changes) a number of sections became effective from the last day of 1956. Among these are the provisions relating to smoke control areas, smokelessness of new furnaces, height of chimneys, colliery spoilbanks, Crown premises, and expenditure on research and publicity. The Ministry of Housing and Local Government issued, in December, an informative memorandum on smoke control areas and one on the other provisions about to come into force.

At the Southport conference of the Society in October a resolution (quoted below) was passed in which local authorities were urged to take early preparatory action with respect to the Act. This was duly submitted to all the Authorities, from many of whom replies are now being received. It appears that although many are considering very seriously their responsibilities under the new Act others seem to be less concerned or to be hesitant because of anticipated difficulties. One main difficulty appears to

be that of obtaining adequate trained staff. There also seems to be some concern about the possible cost involved in setting up smoke control areas. On this point we can only emphasize, as has so often been done, that the administrative costs of a clean air policy cannot be more than a small fraction of the continuing cost of polluted air to the community. Clean air will not be obtained without a much greater financial investment—in administration, equipment, plant, research and education—than is at present being made, and to ensure that this is understood and accepted is perhaps one of the Society's most important immediate tasks.

Reaction to the Act

Not only does the Clean Air Act appear to have been generally accepted by industry, but it has greatly stimulated the study of air pollution problems, largely in relation either to its administration or to the technical means and methods for meeting its requirements. There have been held during the year a considerable number of lectures, courses of a series of lectures, symposia and discussions, organized by university departments, technical colleges and professional bodies. There have also been many articles in the specialist journals and features or supplements in the daily press, often linked with fuel efficiency. The Society, incidentally, has been able to assist many authors with references, information and illustrations.

It would be difficult to catalogue these meetings and writings, and invidious to select a few for special mention. A few years ago, outside the Society's own activities, consideration of air pollution matters was to be found only occasionally, and it is gratifying to see how widely and seriously interest in the subject is at present being made manifest. The level of interest may, however, tend to fall again as the Act ceases to be a novelty and becomes an accepted feature of industrial and administrative routine, in which case the Society would have to seek more urgently to maintain interest.

Material Progress

Progress towards clean air is not simply a matter of an Act of Parliament, active local authorities and public approval. It is also a matter of materials—plant, instruments, appliances, fuel and power. The development of these has been stimulated by the new Act and much progress in production and application is to be seen, the most important instances of which are reported in "Smokeless Air" or discussed at the Society's conferences. During the year, for example, new smokeless fuels came on to the market and new plant for producing such fuels has been erected. There is all-round progress, but it is doubtful whether it has yet reached anything like the level needed to achieve the Beaver Committee's programme in the estimated 10 to 15 years. Everything is moving in the right direction, but it is moving much too slowly.

It is not possible to review here the whole field of air pollution problems, but two matters of importance may be mentioned. First there is the increasing public concern about pollution from road vehicles, arising mainly from the visible nature of diesel smoke rather than to the less apparent but possibly more dangerous exhausts from petrol engines. More research and the application of methods to secure efficient combustion, together with a more vigorous enforcement of the existing law (or the introduction of a new law) appear to be called for. The second matter is the need to encourage further the training of boilerhouse and furnace operators, to call for certification to be a qualification for such employment, and to ensure that the possession of a certificate is recognized by a higher rate of pay. It is encouraging to learn that the last point has recently been met, by a Whitley Council board, for boilerhouse men employed in the hospital services.

II. THE SOCIETY

The Society's present position continues to be sound, with membership and income maintaining a steady upwards movement, and with its standing or prestige continuing to rise. Also continuing to rise, as is to be expected at the present time, are the opportunities for useful work and the demands for services of various kinds. The improvement of resources, unfortunately, still lags well behind the urgent need for a considerably increased income. The result is that a great deal of work that ought to be done cannot be attempted, or if attempted is done with strain, on too small a scale, and at too low a cost for the optimum results. This applies particularly to our publications, exhibits and other educational services. It is hoped that the new powers of local authorities, under the Clean Air Act, for expenditure on education and publicity, will result in the Society being given aid on a more substantial scale.

The Society's intimate concern with the Clean Air Bill has already been mentioned, and after this the Executive Council and a special sub-committe consisting of a representative from each Division, has been devoting much time and thought to the increasingly necessary revision of the Society's constitution. This work later included examination of the question of the Society seeking Incorporation, as a company limited by guarantee, under the Companies Act. Although the proposals were not completed in time for the Annual General Meeting held in conjunction with the Conference at Southport, the position was explained and the meeting agreed, by resolution, that:

> "A Special General Meeting be held at an early date to consider proposals to revise the Constitution of the Society, and that these include a change of name to National Clean Air Society."

The detailed proposals—Memorandum and Articles of Association, and Byelaws, drawn up with professional advice, were finally approved by the Executive Council at a meeting held on 20th December, 1956, and after submission to Counsel for approval on their legal aspects, will be submitted to an Extraordinary General Meeting which it is hoped to hold in March or April, 1957.

It will be noted that the approval of members for a change of name to National Clean Air Society was given at Southport, and this change is of course included in the new constitution, as the first article in the Memorandum of Association. The phrase "smoke abatement" is rapidly being replaced by the new comprehensive and positive term "clean air," and its retention by the Society would increasingly convey an undesirable sense of belonging to the past. It will be noted that the change has been anticipated, in a minor way, by calling the publication in which this report appears the "Clean Air Year Book."

Annual Conference and General Meeting

The conference held at Southport on October 3rd to 5th attracted the largest attendance of any, showing a substantial increase over the previous year's figure—from 578 to 679. The main theme was naturally the Clean Air Act, which was the subject of an address by the Parliamentary Secretary to the Minister of Housing and Local Government, Mr. J. Enoch Powell, M.B.E., M.P., and theme of a session devoted to local authority viewpoints on the Act, while the Des Voeux Memorial Lecture, by Sir Hugh Beaver, on "Clean Air: the next Chapter," took the Act as the text for a survey of the work that was now needed. Another conference session of "Progress Reports" consisted of papers on health, pollution from road vehicles, and the production of new types of solid smokeless fuels. Another

session on "Clean Air and the Housewife" included papers by three representative women speakers. The discussions were well-informed and added much to the interest and value of the papers themselves. A full record is included in the volume of *Proceedings*, now available from the Society's Head Office, price 12/6d.

The New President

At the annual general meeting which followed the closing conference session it was announced that the only nomination received for President, to succeed Sir Ernest Smith, was Dr. R. Lessing. Dr. Lessing first became associated with the former Coal Smoke Abatement Society in 1908, and is the only member of that body still actively serving the smoke abatement cause. As an appreciation in the Winter, 1956, issue of *Smokeless Air* records, he has done a great deal to promote cleaner air, including his membership of the Beaver Committee.

Also announced at the Annual General Meeting was the election of Mr. G. W. Farquharson as a new Vice-President, and three new members of the Executive Council: Mr. Ieuan Lewis (South Wales), Mr. A. J. Dalton (South Wales) and Mr. A. O. Johnson (North West).

Conference Resolution

Reference has already been made to a resolution proposed on behalf of the Executive Council and adopted *nem. con.* by the Conference. Its terms were as follows:

"THAT this Conference of the National Smoke Abatement Society welcomes the Clean Air Act and re-affirms its determination vigorously to pursue its policy of securing clean air. It urges:

(1) That since the effective implementation of the provisions of the Act largely depends on an informed public opinion, all local authorities should, without delay, initiate a well-directed plan of publicity and education.

(2) That local authorities should now take immediate action in order to be prepared to administer and implement the Clean Air Act.

(3) That the Minister of Health and the local authorities should take all necessary steps to augment the Public Health Inspectorate so that the provisions of the Act may be effectively implemented.

(4) That H.M. Government should take all necessary steps to make generally available supplies of smokeless fuels at prices which will favour their use."

Obituary

As appreciations have been published in *Smokeless Air* during the year it is here only necessary to record formally the deaths during the year of several valued members of the Society. They include Mr. J. W. Beaumont of Halifax, a member of the Executive from the first years of the Society and later its Deputy Chairman and a Vice-president; Mrs. L. Hayhurst of Manchester, a member of the Executive and for many years a devoted member in the North West Division, for which she was Hon. Treasurer; Sir Francis Simon, C.B.E., F.R.S., the distinguished scientist; Mr. F. G. McHugh of Leicester, a former member of the Executive and valued member of the East Midlands Divisional Council; and Alderman J. E. Swain, of Peterborough, Deputy Chairman and prospective Chairman of the East Midlands Divisional Council.

Smokeless Air

December, 1956, saw the publication of the 100th issue of the Society's quarterly journal, in which were included messages of congratulation from the Ministers of Housing and Local Government and of Fuel and Power, together with an editorial

article describing the story of the publication. Despite difficulties from time to time, especially during the war, *Smokeless Air* has been published without a break since it was started in 1929, and has proved to be one of the most useful means for keeping in touch with members, keeping them informed of what is happening, and for making the Society and its work known to many others. The century issue has been given a number of complimentary reviews in the Press.

Other Publications

The distribution or sale of the other publications of the Society is steadily increasing. The *Summary of the Clean Air Act* has sold over 12,000 copies to date and continues to be in demand. New leaflets for "give away" purposes have been published and are also being sold in satisfactory numbers. The attempt is made to make each successive edition of the *Year Book* more informative, and there is little doubt that it is widely valued as a reference book. The *Proceedings* of the annual conference is a more expensive publication but is of importance because of the authoritative papers and information it contains.

Exhibitions

The Society's smaller exhibits have been on loan to a number of local authorities and others during the year for use in exhibitions of various kinds. The Society is also co-operating in the series of exhibitions during the autumn and winter months, and continuing until the spring of 1957, in the West Midlands. This campaign is one of the most ambitious so far organized and in many of the towns visited, the exhibition, and meetings held in conjunction with it, have been most successful. A new transportable exhibit has been prepared in four units.

Although this material, which is of course intended for further use after the present campaign, is modest in comparison with commercial displays, the cost to the Society of taking part in the campaign will amount to about £800. It will be evident that the Society cannot organize or participate in exhibitions on a larger scale and in an effective way until it is able to devote considerably greater sums to the production of material and to its handling, maintenance, transport, and staffing when in use. Exhibitions are to-day an expensive means of publicity, and although the cost may well be worth while it is necessary to scrutinize each project with considerable care.

The other aspect of the Society's exhibition activities is the loan of smaller exhibits to local authorities in particular for use in their own exhibitions and displays. The items that are available are in constant demand up and down the country, and with few exceptions they have been designed to be packed in their own transport cases and sent by rail or road. The material could with advantage be duplicated or triplicated and new items added more frequently than present resources permit.

Two new posters have been prepared and the familiar colour poster "Away with Smoke" is having to be reprinted.

Services

Calls on the Society's services continue to grow, whether they be for information, advice, publications, material for exhibitions and lectures, articles and photographs for publications, or speakers for meetings. In the majority of cases the requests come from non-members, and—except for actual sales, etc.—no charge can be made, even though in the aggregate a considerable proportion of the time of the Staff is occupied with such services. This is undoubtedly as it should be, for promoting the objects for which the Society exists, but for the work to be done as expeditiously (and efficiently) as we would like additional staff is needed.

Whereas requests for information can usually be dealt with by supplying either the facts or references to the literature in which the facts can be

found, requests for advice (including complaints about pollution cases) are normally met by reference to the appropriate local authority or technical body. Similarly, requests that an officer of the Society should investigate some specific case of pollution have to be refused, although suggestions may be made on what procedure might be followed to obtain the assistance required.

A number of lectures and addresses have been given by members of the Society, arranged through headquarters, or have been given by members of the Staff. These have ranged from papers at a national level to talks at various kinds of small local meetings.

Membership and Finance

All classes of membership have shown a moderate increase over the year. There is no doubt that the rate of increase could be accelerated through a planned and continuing campaign for membership. Desirable though this is, the fact remains that the Council and Staff have been too fully occupied by other tasks of greater urgency, but it is hoped that it will be possible during 1957 to make an appeal for greater support. The annual statement of accounts, on another page, shows increases in both income and expenditure, the net result being a much smaller surplus than in the previous year. Additional costs—especially in exhibition materials, printing and salaries—are likely to lead to a deficit in the 1956–1957 accounts, unless new contributions can be secured.

At the annual general meeting in Southport a question was asked about the proportion of income from the different classes of member. An exact reply could not then be given, but the following analysis shows the present position, both in respect of numbers of Members (and Associate Members) and the proportion of subscriptions from each:

	No.	% of Subs.
Individual Members	351	5
Local Authority Members	515	33
Corporate Members	195	62

That the contributions from Corporate Members should exceed those from Local Authorities is largely due to the augmented contributions being made by a number of industrial firms and boards. Those subscriptions have been of great value to the Society during the last few years, and the opportunity is taken of expressing our warm appreciation to those concerned.

The Divisions

As the reports by their Hon. Secretaries, which follow, clearly show, the Divisional Councils of the Society have been most active during the year. In the North East the difficulties regarding the attendance of local authority representatives at meetings still unfortunately persists, and the new South Wales Division has met with some organizational difficulties which it is hoped will shortly be overcome.

The meetings and visits organized by the Divisions are greatly appreciated by the members who are able to participate in them, and the Hon. Secretaries in particular should be thanked for the considerable amount of work they do—much of it not seen—in so valuably helping to bring members together in friendly and mutually helpful contact. The Divisional activities demonstrate very clearly the importance of the Society also in bringing together, in a way that is not otherwise possible, the representatives of local government on the one hand and of technology and industry on the other.

F. J. REDSTONE, *Chairman of the Executive Council.*

ERNEST SMITH, *Hon. Treasurer.*

ARNOLD MARSH, *Director and Secretary.*

SCOTTISH DIVISION

The past year has been one of great activity in the Scottish Division. The Annual Conference was held at Rothesay on the invitation of the Town Council who provided generous hospitality. Papers on contemporary space heating were given by representatives of the Electricity and Gas Boards on the first day of the conference and on the second day addresses on "The Measurement of Air Pollution" and "Gas Coke as a Smokeless Fuel" provided an interesting discussion.

Classes for firemen in smoke abatement and boilerhouse practice have continued this year and the Division have asked the national body to consider the possibility of obtaining monetary recognition for certificates gained in the form of higher wages.

At a recent meeting verbal and other reports were submitted on proposals arising from the passing of the Clean Air Act in various areas of the Division and it was agreed that the divisional meetings should be used as a clearing house for the dissemination of information and the ventilation of problems.

NORMAN FRASER, *Hon. Secretary*

NORTH WEST DIVISION

Against the background of half a century's campaigning for smoke abatement, the events of recent years by comparison have been meteoric. 1956 in particular will be easily remembered because it forms part of the title of the new Clean Air Act, and so, invigorated and encouraged by this success, we pass another milestone in the history of the Society, and we now look to the Local Authorities to exercise the new powers as they become available. Much remains to be done, not by any means least in the North West, where the presence of grey skies over the industrial areas is a constant reminder of the problem.

The Division Council has had an active year, having met on five occasions, the venues being Leigh, Oldham, and Manchester. The meeting held at Leigh was combined with a visit to the boilerhouse of a large industrial establishment which was excellently equipped and maintained.

Close attention was given to the Clean Air Bill in its passage through the Committee stages and, later, consideration was given to various matters which will be governed by Regulations to be prescribed in due course by the Minister. The considered opinions of the Councils were referred to the National Executive Council. Another reference asked that the Technical Committee should consider the advisability of securing effective control over the construction of domestic chimneys.

Proposals to change the name of the Society and to revise the Constitution were the subject of close investigation at a meeting specially convened for the purpose and the National Executive Council were informed of the findings.

Oldham was the venue for the Annual General Meeting at which the special feature was an address by the Director of the Society who reviewed activities and events of recent years with particular reference to the Clean Air Bill.

It is pleasing to report a particularly successful joint meeting with the Institute of Fuel, when a most instructive address was given by Mr. C. J. Stairmand, whose paper "The Design and Performance of Modern Gas Cleaning Equipment" is comprehensive and an excellent work of reference to those concerned with grit and dust emission.

The North West welcomed the Annual Conference of the Society to Southport and took a prominent part, particularly in the important session "Local Authorities and the Clean Air Act" each of the authors of the three papers given being members of the Division.

At the Conference, publicity was given to the new smokeless solid fuel produced by the North Western Gas Board, Phimax (ex-Thermalite) a semi-coke which it was claimed would satisfy the requirements of an improved fuel desired by the Beaver Committee Report. Such a fuel could make an outstanding contribution to domestic smoke abatement and the Divisional Council arranged a special open meeting so that all its members could have the fullest information. The meeting was addressed by Mr. Hodgkinson, deputising for Mr. Welman, but the attendance was not as

good as had been expected.

Alderman Bland of Nelson, who had been a member of the Divisional Council since its inception, resigned during the year and this opportunity is taken to record appreciation of his services.

Towards the end of the year the Divisional Council gave preliminary consideration to a suggestion to hold a clean air campaign on similar lines to that proceeding in the Midlands.

H. MOORE, *Hon. Secretary.*

YORKSHIRE DIVISION

During the past year the Divisional Council has lost the services of two of its members—Mr. J. W. Beaumont, a former Chairman of the Divisional Council and a member of the National Executive; and Mr. O. Inman of Stockbridge.

The four Council meetings held in the Division during 1956, at Leeds (2), Braford and Wakefield, have all been concerned with the various aspects of the "Clean Air Act, 1956."

The most effective of these meetings from the publicity angle was that at Bradford, which was arranged in co-operation with the Bradford Civic Society, and was an open meeting attended by almost a hundred interested persons including representatives from 38 Local Authorities in the Yorkshire Division. Dr. John Douglas, Medical Officer of Health, Bradford, gave a paper on local conditions; Mr. R. J. Steele, Chairman of Amenities Committee of the Bradford Civic Society outlined the views of his Committee on the question of air pollution. The duties of Local Authorities under the Clean Air Act were dealt with by Mr. F. H. Myers, the Chief Public Health Inspector of Bradford and the very important financial aspects of the Act were explained by Mr. John Ruscoe, City Treasurer of Bradford, whose paper raised many questions in the minds of the delegates. A very lively discussion, which brought out many points of interest, concluded the meeting.

Members of the Council have continued their educational activities throughout the year, the emphasis being on the coming into operation of the Clean Air Act. The City Council of Hull has indicated its determination to implement the provisions of the Act by appointing a Clean Air (Special) Committee, comprising representatives from the Health; Cleansing and Sanitary; Town Planning; Housing, and Works Committees. This recognises the fact that the first duty of a Council is to set a good example in all its departments and in respect of all fuel burning installations controlled by them.

Representatives of the press have been present at three of our meetings and the resulting publicity has been most effective.

JAMES GOODFELLOW,

Honorary Secretary

WEST MIDLANDS DIVISION

Activities within the Division gained publicity by reason of several notable events during the year, as follows:—

(*a*) The Royal assent to the Clean Air Act, 1956.

(*b*) Successful and well attended members' meetings.

(*c*) The commencement of the West Midlands Clean Air Campaign.

A number of papers and addresses to various bodies have been given during the year in which good use was made of the information booklets, and other material published by the Society. Articles have also been published following interviews with members of the press and feature editors. The effects of this propaganda are not easy to measure, but there is no doubt that the steady continuation of publicity whether by means of the press, or other means, over a number of years, slowly creates the foundations for building up a public consciousness against atmospheric pollution, but the message has yet to be brought home and accepted by the housewife in traditional houses.

The Management Committee have met on four occasions, and have continued to receive the active support of various professional and other organisations through their representatives co-opted to the Committee.

The Committee have noted the deliberations of the Constitution Sub-Committee of the Executive Council on the redrafting

of the Society's Constitution, and look forward with interest to receiving the final drafting of the revised constitution, bye-laws, and articles of association.

The following divisional meetings were held in 1956:—

Birmingham—19*th March*, Meeting of the Management Committee.

Birmingham and West Bromwich—18*th April. Annual General Meeting*. Delegates were officially welcomed by the Lord Mayor of Birmingham, Alderman A. Lumis Gibson, J.P., at a well attended meeting held in the Birmingham Council House. The members were addressed by Sir Ernest Smith, C.B.E., and Mr. Arnold Marsh, O.B.E., on matters relating to the Society, and Mr. G. Le B. Diamond, Chairman, West Midlands Gas Board, gave an enlightened description of the Board's activities, concluding with a reference to the arrangements for luncheon, and afternoon visit to the Swan Village, New Gas Works, West Bromwich. This visit proved to be one of the most successful held in the history of the Division.

Birmingham—18*th July*. Meeting of the Management Committee.

Birmingham—14*th November*. Meeting of the Management Committee, followed by a joint meeting of Divisional members with the members of the Institute of Fuel, (Midland Section). The evening meeting preceded by a buffet tea, was well supported, and considerable discussion arose from the remarks and papers read by prominent speakers dealing with "Provisions in the Clean Air Act, 1956," and how they would be likely to affect industry and local authorities.

A slight increase in divisional membership has been recorded, and the Management Committee welcomed the addition of one new local authority, and two private members.

The Committee are desirous of ensuring that representation, nomination, and election of members of the Division to the Management Committee should receive more consideration by the Division members, and consider that one of the immediate tasks for the future must be to review the Divisional Constitution in the light of the proposed changes as envisaged in those of the Society, and to seek ways whereby the general apathy in regard to the election of officers can be stimulated.

G. W. FARQUHARSON,

Honorary Secretary

EAST MIDLANDS DIVISION

It may, with confidence, be said that 1956 was a year of progress towards the achievement of our objective—a clean atmosphere. The Clean Air Act which received Royal Assent on the 5th July, 1956, aroused considerable interest in the East Midlands. Many enquiries were received from industrialists and others regarding the establishment of smoke control areas and the adaptation of plant to ensure smokeless operation. Co-operation and effort by industry, householders and local authorities should bring about a great improvement in the cleanliness of the atmosphere in the next few years.

The magnitude of the problem must not be overlooked, however, and it was with some concern that the Divisional Executive Council received evidence of an increase in emissions of dust and grit, in certain localities, from heavy industrial processes. The position must be watched closely and a special meeting to discuss the matter with members of other Divisions has been suggested.

A development of interest to the Society during 1956 was the inauguration of The Avenue Carbonization and Chemical Plant by the National Coal Board, East Midlands Division, in Derbyshire. Without adequate supplies of smokeless fuel the campaign for clean air cannot succeed. This plant will produce annually 500,000 tons of solid smokeless fuel and over 5,000 million cubic feet of town gas.

The Division met on three occasions as follows:—

Peterborough—26*th April*. Delegates were welcomed at the Town Hall by the Right Worshipful the Mayor of Peterborough (Councillor Lady Benstead, J.P.). The works of Frank Perkins Ltd., were visited.

Cambridge—19*th July*. At this Annual General Meeting Councillor Mrs. Ellen E. Bostock (Ilkeston) was appointed Chairman for 1956/57 and Mr. G. E. Chamberlain was appointed Deputy Chairman. Mr. D. W. Bottom, M.R.S.H., Chief Public Health Inspector gave an address on "The Clean Air Act and Local Authorities" and Mr. Humphrey L.

Warren, D.F.C., A.F.C., M.A., spoke on "Solid Fuel Supplies."

Nottingham—8th November. A tour of the Nottingham smokeless area at Clifton was made by the delegates, followed by a meeting at the North Wilford Power Station by invitation of the Central Electricity Authority, East Midlands Division. An address "Power Stations and Smoke Abatement" was given by Mr. O. S. Woods, Chief Generator Engineer.

A. WADE, *Hon. Secretary.*

SOUTH EAST DIVISION

The South East Division's activities have been well maintained during the past year and particular interest has been evinced as a matter of course in the passage of the Clean Air Bill to its finality as a statute "The Clean Air Act."

In addition to this important matter, the Council has been in constant touch with the Parent Society in connection with the proposed revision of the Constitution of that body, which revision had been called for at Conference last year.

In addition to Council meetings, general meetings have been held at places of particular interest to enthusiasts in the matter of the abolition of atmospheric pollution, when opportunities were afforded to members and representatives to view certain kinds of premises and processes, which are invariably the subject of contention as to causation of air pollution. Those attending were able to witness the various processes and the measures which are taken to ensure that the minimum of nuisance ensues from the point of view of air pollution and their consensus of opinion at the close of the visits was favourable.

Early in the year an arrangement was made by the Division for the National Executive Council to visit the Pimlico District Heating Scheme at the kind invitation of the Westminster City Council. The visit was conducted much on the lines of the occasion when members of the Division visited the Undertaking last year, the party being welcomed by the Chairman of the City Council's Housing Committee, Group Capt. G. H. M. Pirie, C.B.E., Alderman Charles C. P. Russell, C.V.O., J.P., and Mr. Bryan Donkin, B.A., Consulting Engineer for the District Undertaking, gave brief descriptions of the Undertaking, following which an inspection of the plant and some of the flats in occupation ensued. Members of the party each received a copy of the City's souvenir brochure on the Undertaking.

For the benefit chiefly of members located in the south part of the Division, there was a visit to Brighton "B" Power Station at Portslade-by-Sea where members were received by Mr. A. J. Din, the Station Superintendent and a detailed tour of the Station was arranged.

The Kent Works of the Associated Portland Cement Manufacturers Ltd. at Stone Castle, Greenhithe, Kent, was selected for a meeting, bearing in mind the many occasions on which complaints as to cement dust have been discussed.

Considering the great advances being made in the consumption of fuel oil and the nuisances which arise from the use of petrol and fuel oil on the roadways, a visit to the Research Station of the Shell Mex and B.P. Co. at Sunbury was of extreme interest and it is hoped that this visit will be repeated in order to give an opportunity to those to attend who were unable to be present on this occasion.

The Third Annual General Meeting was held in the Caxton Hall on 14th December and again was well attended.

At the close of the business a symposium on "The Clean Air Act—Its Operation," was given by a panel composed as follows:

Mr. W. A. Smith, M.Inst.Fuel, etc. (National Industrial Fuel Efficiency Service)–"The Problem for Industry."

Ald. C. H. Smith, O.B.E., D.L., F.R.S.H —"The Local Authority Approach."

Mr. W. R. McGrath, F.S.I.A.— "Administration of a Smokeless Zone."

Mr. Arnold Marsh, O.B.E., M.SC.TECH. —"Publicity and Propaganda."

The papers given were concise and informative, and the members of the panel answered many questions put to them. The audience appreciated the helpful suggestions and views expressed by the speakers.

The enthusiasm of the members and representatives of the Division, together with the persistent numerical increase, lead the Council to entertain great hopes for the future well-being of the Division and the Society.

J. J. MATTHEWS, *Hon. Secretary.*

North East Division—see page 49

INFORMATION ABOUT THE SOCIETY

The forerunners of the Society were the Coal Smoke Abatement Society, established in London in 1899, and the Smoke Abatement League of Great Britain (1909), which was concerned mainly with the Provinces. The two bodies amalgamated in 1929 to form the present Society. In 1945 its growth and increasing influence made necessary a new constitution to which reference should be made for further information about membership, offices, Executive Council and Committee, etc.

Divisions

For electoral purposes and, where it is desired, area organisation, the Society is now composed of the following geographical Divisions: (1) Scotland, (2) Northern Ireland, (3) North West, (4) North East, (5) Yorkshire, (6) West Midlands, (7) East Midlands, (8) South West, (9) South East, (10) South Wales and Monmouthshire. (See Constitution for the Counties in each Division.)

Membership

The Society is wholly dependent on the contributions of its members for the maintenance and growth of its work, and invites the support of all who sympathize with and wish to promote its objects. These, to quote from the Constitution, are "to secure throughout the United Kingdom, the maximum of natural light and air free from every form of pollution, and particularly that arising from the combustion of fuel."

There are four classes of membership—for individuals, local authorities, institutions and corporate bodies such as firms and public undertakings. Particulars of membership are given in next column.

Individual members and the representatives of other members have rights of nomination and voting in elections for Officers and Council. They receive, free of charge, the Society's quarterly journal *Smokeless Air*, and other publications. They are entitled to receive assistance and information on problems relating to smoke abatement. In addition to receiving notices of meetings and conferences organized nationally, they are entitled to participate in any activities organized by or in their own Division.

Associates

Any individual, local authority, institution or corporate body contributing less than the appropriate membership subscription may become an *Associate*, entitled to some of the privileges of membership, but not to those relating to nomination, voting and election to office.

Subscriptions

INDIVIDUAL MEMBERS—Not less than 15s. 0d. a year.

LOCAL AUTHORITY MEMBERS—Not less than the following amounts, according to populations:

Less than 25,000 ..	3	guineas
25,000 to 50,000 ..	4	,,
50,000 to 75,000 ..	5	,,
75,000 to 100,000 ..	7	,,
100,000 to 250,000 ..	12	,,
250,000 to 500,000 ..	18	,,
Over 500,000	30	,,

INSTITUTION MEMBERS (which includes Societies, Associations and Groups) *and*

CORPORATE MEMBERS (which includes Companies, Firms, and Departments of Local Authorities)—Not less than 12 guineas for members appointing two Representatives; not less than 7 guineas for members appointing one Representative.

SPECIAL CASES—The Executive Council may consider applications for membership on special terms as to subscriptions and otherwise. This rule is intended to apply in particular to local and other small voluntary associations wishing to become Institution Members.

ASSOCIATES—Any sum that is less than the appropriate subscription for membership.

DONATIONS—The Society will be pleased to receive single or annual donations for any amounts from non-members.

PUBLICATIONS—Annual subscriptions may be made for *Smokeless Air* and for other publications as issued.

PAYMENT OF SUBSCRIPTIONS—The first subscription should be forwarded with application for membership. This may be sent at any time, and the subscription remains in force until the first day of the corresponding month of the following year. It is mutually advantageous if subscriptions are made by Banker's Order.

Representatives

Local Authority, Institution and Corporate Members are entitled to appoint Representatives to exercise on their behalf the rights of members as regards nomination for office, voting, and receipt of publications, etc. Institution and Corporate Members may appoint one or two representatives each, and local Authority Members a number according to population, as follows:

Less than 100,000 ..	.. 2
100,000 to 250,000 ..	.. 3
250,000 to 500,000 ..	.. 4
500,000 and over ..	.. 5

The names and addresses of Representatives should be forwarded on making application for membership, so that they may be entered in the Voting Registers.

SERVICES TO MEMBERS

Information and Advice

Advice, assistance and information on matters relating to atmospheric pollution and its prevention is available free of charge to Members, provided that, where necessary, the request is approved by the Executive Council. If the information required is not immediately available to the Society's Information Department, the Society is prepared, on behalf of a Member, to obtain it from one of the specialized Information Bureaux with which it is in touch.

Library

The Society's Library is available for the use of all Members. It possesses bound annual volumes of Press cuttings, and an extensive collection of both British and foreign books, reports and pamphlets on air pollution and related subjects. In some cases, the Society is the only organization in the United Kingdom receiving the publication. Books and other publications are issued on loan, or may be consulted in the Society's offices. The Society is linked with various specialist and technical libraries, and when a publication relating to some special aspect of air pollution is not in the library, the Society can often borrow it through other sources. Application should be made initially to the Information Officer.

Lectures

The Society will be pleased to help members and others in any part of the country to arrange lectures and talks of all kinds on atmospheric pollution and related subjects.

Lantern Slides

A collection of lantern slides is available, and slides may be borrowed at a charge of 3d. per slide per lecture, plus the cost of registered postage.

Films

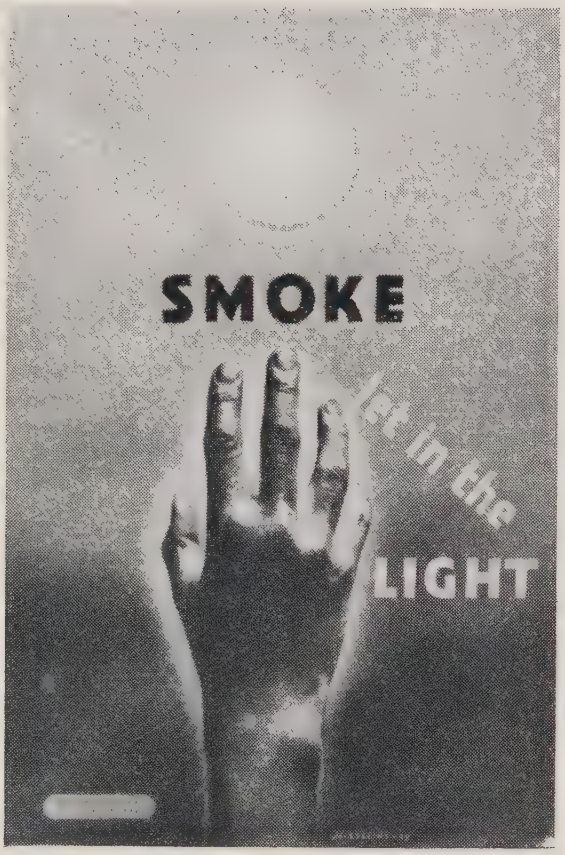
The Society does not possess a film or film strip of its own, but issues a comprehensive list of films available from other sources.

Exhibitions

The Society is prepared to consider participating in exhibitions, and has also a supply of material available for loan. Additions are continually being made to this collection, and those interested should write for the most recent issue of the descriptive list and an order form. In view of the heavy demand for this material, inquiries should be made as early as possible in advance, and should give full details of requirements, including the proposed dates of the exhibition. In view of packing and transport difficulties, material can be loaned more conveniently if it can be collected from, and returned to the Society's offices in Palace Chambers by car or van. The cost of carriage by passenger train, and a nominal packing fee (to cover the cost of packing and insurance) is charged where material is sent by public transport. No other fees are charged to full members of the Society for the loan of the material, but a moderate charge is made to non-members and Associate members. We shall be glad to send terms on request. Examples of some of these exhibits are shown in the illustration.

The Society also has four larger exhibition units (illustrated), which can be hired at the rate of 10s. for each day of loan, excluding the cost of transport. Each of these larger units deals briefly with one important aspect of the problem of air polution, e.g., the effect on health, "Smoke and the Cost of Living," the Clean Air Act, etc.





Two of the Society's posters, described below

Posters

The following posters are available:

(1) Prize-winning photo-colour poster, 30 in. by 20 in., "Away with Smoke —Let in the Light" (illustrated). Single copies 1s 9d., 12 copies 1s. 7d. each. Further reductions for quantities—details on request.

(2) Pictorial chart, 30 in. by 20 in., designed primarily for school use, "These are the things that Smoke does." (Illustrated). Price 1s.

(3) "They didn't know what to do," 15 in. by 20 in.

(4) "We have the answer to smoke," 15 in. by 20 in.

These two line-block and letter-press posters are printed on tinted paper, and can be used either separately or as a pair. Price 6d. each. Prices do not include postage or transport charges. Posters may be provided free in appropriate cases.

Literature

Inquiries are invited on the supply of publications, give-away leaflets, etc., for special purposes. Particulars of these are given below and also in the Society's "Guide to Publications," on another page.

(1) "Descriptive Summary of the Clean Air Act." 6d. per single copy (by post 8d.), 4s. 6d. per dozen, or £1 10s. per hundred.

(2) "Smoke Control Areas." 2d. per single copy (by post 4d.), 2s., per dozen, or 12s. 6d. per hundred.

(3) "Facts About Smoke." 14s. per hundred, or £6 10s. per thousand.

(4) "They Didn't Know What to do." 4s. per hundred, or £1 10s. per thousand.

Photographs

The Society has a classified and indexed collection of several hundred smoke and other photographs, which are suitable for reproduction and/or exhibition purposes. Prints may be inspected at the Society's offices, or a selection will be sent by post if details of requirements are given. The copyright in the photographs is retained by the photographer, and where reproduction fees are chargeable, the inquirer should communicate with the photographer.

New photographs of high pictorial quality, with reproduction rights, are required, either as gifts or for payment at standard rates.

AFFILIATED LOCAL AUTHORITIES

As at 28th February, 1957

(Associates in *Italics*)

Scottish Division

Aberdeen, Airdrie, Ardrossan, *Ayr C.C.*, *Ayr*, Barrhead, Clackmannan C.C., Clydebank, Coatbridge, Dumbarton, Dumfries, Dunbarton C.C., Dundee, Dunfermline, Edinburgh, Falkirk, Glasgow, Grangemouth, Greenock, Hamilton, Hawick, Inverness C.C., Inverness, Irvine, Johnstone, Kilmarnock, Kilsyth, Kirkcaldy, Kirkintilloch, Lanark C.C., Loanhead, Motherwell and Wishaw, Musselburgh, Paisley, Perth, *Port Glasgow*, Renfrew C.C., Renfrew, Rothesay, Rutherglen, Stirling C.C., Stirling, *West Lothian C.C.*

Northern Ireland Division

Belfast, Castlereagh.

North West Division

Abram, Accrington, Ashton-under-Lyne, Atherton, Audenshaw, Bacup, Barrow-in-Furness, Bebington, *Birkenhead*, Blackburn, Blackpool, Bolton, Bootle, Bredbury and Romiley, Brierfield, Burnley, Burnley R.D.C., Bury, Buxton, Chadderton, Cheadle and Gatley, Cheshire C.C., Chester, Church, Clitheroe, Colne, Crewe, Crompton, Crosby, Cumberland C.C., Darwen, Denton, Droylsden, Eccles, Ellesmere Port, Failsworth, Farnworth, Fleetwood, Flint, Fulwood, Glossop, Golborne, Great Harwood, Hale, Haydock, Hazel Grove and Bramhall, Heywood, Horwich, Hoylake, Huyton-with-Roby, Hyde, Irlam, Kearsley, Lancashire C.C., Lancaster, Leigh, Leyland, Littleborough, Liverpool, Longdendale, Macclesfield, Manchester, Marple, Middleton, Middlewich, Nelson, Newton-le-Willows, Northwich, Oldham, Ormskirk, Padiham, Preston, Preston R.D.C., Radcliffe, Rawtenstall, Rhyl, *Rishton*, Rochdale, Royton, St. Helens, Sale, Salford, Sandbach, *Southport*, Stalybridge, Stockport, Stretford, Swinton and Pendlebury, *Thornton Cleveleys*, Urmston, Wallasey, Walton-le-Dale, Warrington, *Warrington R.D.C.*, West Lancs. R.D.C., Whiston, Widnes, Wigan, Workington, Worsley, Wrexham, Wrexham R.D.C.

North East Division

Ashington, Barnard Castle, Bedlingtonshire, Billingham, Bishop Auckland, Blaydon, Brandon and Byshottles, Castle Ward, Chester-le-Street R.D.C., Chester-le-Street U.D.C., Consett, Crook and Willington, Darlington, Durham R.D.C., Eston, Felling, Gateshead, Gosforth, Hartlepool, Hebburn, Hetton, Houghton-le-Spring, Jarrow, Lanchester, Longbenton, Middlesbrough, Newburn, Newcastle-upon-Tyne, Northumberland C.C., Prudhoe, Redcar, Ryton, Saltburn and Marske-by-the-Sea, Seaham, Sedgefield, Skelton and Brotton, South Shields, Stanley, Stockton-on-Tees, Sunderland, Sunderland R.D.C., Thornaby-on-Tees, Wallsend, Washington, West Hartlepool, Whickham, Whitley Bay.

Yorkshire Division

Adwick-le-Street, Aireborough, Batley, Bentley-with-Arksey, Bingley, Bradford, Bridlington, Brighouse, Castleford, Colne Valley, Conisbrough, Darton, Dearne, Denby Dale, Dewsbury, Dodworth, Doncaster, Doncaster R.D.C., Halifax, Harrogate, Hemsworth R.D.C., Hemsworth U.D.C., Hepton, Holmfirth, Horbury, Horsforth, Huddersfield, Hull, Ilkley, *Keighley*, Leeds, Meltham, Mexborough, Mirfield, Morley, Normanton, North Riding C.C., Ossett, Otley, Pontefract, Pudsey, Queensbury and Shelf, Rawmarsh, Rotherham, Rothwell, Royston, *Scarborough*, Sheffield and District Clean Air Committee, Shipley, Spenborough, Stanley, Stocksbridge, Swinton, Wakefield, Wakefield R.D.C., Wath-upon-Dearne, Wombwell, Worsborough, Wortley, *York*.

West Midlands Division

Bedworth, Bilston, Birmingham, Brierly Hill, Brownhills, Burton-on-Trent, Cannock, Coventry, Darlaston, Dudley, Halesowen, Kidderminster, Leamington Spa, Meriden, Newcastle-under-Lyme, Nuneaton, Oldbury, Rowley Regis, Rugby, Rugeley, Sedgley, Smethwick, Stafford, Staffordshire C.C., (Corporate), Stoke-on-Trent, Stone, Sutton Coldfield, Tipton, Walsall, Warwickshire C.C., Wednesbury, Wednersfield, Wellington, West Bromwich, Willenhall, Wolverhampton.

East Midlands Division

Alfreton, Basford, Beeston and Stapleford, Belper, Blackwell, Bolsover, Boston, *Cambridge*, Chesterfield, Chesterfield R.D.C., Clay Cross, Clowne, Coalville, Corby, Derby, Derbyshire C.C. (Cty. Planning Committee—Corporate), *Dronfield*, Eastwood, Gainsborough, Grantham, Great Yarmouth, Grimsby, Heanor, Hinckley, Hucknall, Ilkeston, Ipswich, Irthlingborough, Kettering, King's Lynn, Kirkby-in-Ashfield, Leicester, Lincoln, Long Eaton, Loughborough, Lowestoft, Mansfield, Mansfield Woodhouse, Market Harborough, Newark, Northamptonshire C.C., Nottingham, *Nottinghamshire C.C.*, Old Fletton, Peterborough, Ripley, Rushden, Scunthorpe, Southwell, Staveley, Sutton-in-Ashfield, Swadlincote, West Bridgford, Wigston, Worksop, Worksop R.D.C.

South West Division

Bath, Bristol, Cheltenham, Gloucester, Ilfracombe, Kingswood, *Poole*, Portishead, Sodbury, Swindon, Thornbury, Trowbridge, *Weston-Super-Mare*.

South East Division

Acton, Amersham, Andover, Aylesbury, Banbury, Barking, Barnes, Basildon, Battersea, Bedford, Bedfordshire C.C., Bermondsey, Bethnal Green, Bexley, *Bournemouth*, Brentford and Chiswick, Brighton, Bromley, Camberwell, Carshalton, Chatham, Chelsea, Cheshunt, Chigwell, Chislehurst and Sidcup, Clacton, Coulsdon and Purley, Crawley, Crayford, *Croydon*, *Dagenham*, Dartford, Dartford R.D.C., Deptford, Dover, Dunstable, East Ham, Eastleigh, Edmonton, Elstree, Epping and Ongar, Erith, Eton, *Farnborough*, Feltham, Finchley, Finsbury, Folkestone, Friern Barnet, Fulham, Gillingham, *Gosport*, Gravesend, *Greenwich*, Guildford, Hackney, Hammersmith, Hampstead, Harlow, Harrow, Hastings, Havant and Waterloo, Hayes and Harlington, Hemel Hempstead, *Heston and Isleworth*, High Wycombe, Hitchin, Hoddesdon, Holborn, Hornchurch, Horsham, Hove, Ilford, *Kensington*, Kingston-on-Thames, Lambeth, *Lewisham*, *Leyton*, *Littlehampton*, London, City of, London C.C., *Luton*, Malden and Coombe, Merton and Morden, *Mitcham*, New Forest, Northfleet, Orpington, Oxford, *Paddington*, Penge, *Portsmouth*, *Reading*, *Reigate*, Rochester, Romford, St. Marylebone, *St Pancras*, Shoreditch, Sittingbourne and Milton, Slough, Southall, *Southampton*, *Southend-on-Sea*, *Southgate*, Southwark, Southwick, Staines, Stepney, Stevenage, Stoke Newington, Sutton and Cheam, Thurrock, Tottenham, Twickenham, Walthamstow, Wanstead and Woodford, Watford, Watford R.D.C., Wembley, *West Ham*, Westminster, Willesden, Wimbledon, *New Windsor*, Windsor R.D.C., *Wood Green*, Woolwich, Yiewsley and West Drayton.

South Wales and Monmouthshire Division

Abercarn, Aberdare, Abertillery, Barry, Bedwas and Machen, Bedwellty, Bridgend, Caerphilly, Cardiff, Cardiff R.D.C., Cwmbran, Ebbw Vale, Gellygaer, Glamorgan C.C., Llanelly, Llanelly R.D.C., Llantrisant and Llantwit Fardre, Mountain Ash, Mynyddislwyn, Neath, Newport, Penarth, Pontardawe, Pontypool, Pontypridd, Port Talbot, Rhondda, Risca, Swansea, Tredegar, Ystradgynlais.

Divisional Reports—*From page 44*

NORTH EAST DIVISION

The North East Division of the N.S.A.S. has always been gravely handicapped by the veto placed upon its holding more than the single annual meeting. This veto still remains to prevent our meetings, but a promising way round has been found. The retiring Honorary Secretary and Honorary Treasurer, Messrs. G. W. Tate, of Ashington and W. Gray, Newcastle-on-Tyne, conceived the idea of a parallel organization to further the objects of the Society, while, as at the same time its membership would be restricted to local authorities, no objection could be made to holding regular meetings.

Accordingly there has been formed the North Eastern Regional Advisory Committee of Local Authorities for Smoke Abatement and Clean Air. The Chairman is Councillor T. P. S. Prudham of Felling and the Honorary Secretary of the North Eastern Division of the Society, Mr. J. Edwards, Chief Public Health Inspector of South Shields, is Honorary Secretary and Treasurer. Representatives of such bodies as N.I.F.E.S. and the Coal Utilization Council will attend meetings as observers. Sub-committees have been formed for Tyne and Wearside and in all approximately 70 local authorities have responded. At the time of writing all these formative moves are in process but it is hoped that 1957 will see the first results of a combined attack on atmospheric pollution in the North East.

J. E. Edwards, *Hon. Sec.*

NATIONAL SMOKE ABATEMENT SOCIETY

Income and Expenditure Account, Year ended June 30th, 1956

Year ended June 30th 1955	INCOME	£ s. d.
7,139	Subscriptions—General	7,433 13 4
1,599	Special Subscriptions for limited Period	1,425 18 5
168	Sale of Literature	279 15 11
102	Repayment of Income Tax	103 18 4
	£ £ s. d.	
	999 Conference Fees 1,171 16 0	
	742 *Less*—Expenses and Printing 897 3 4	
257		274 12 8
42	Sundry Receipts	26 11 8
73	Income from Investments	82 6 1
£9,380		£9,626 16 5

Year ended June 30th 1955	EXPENDITURE	£ s. d.
3,662	Salaries and Fees	4,235 3 9
917	Rent, Rates, Gas, Water and Heating	1,287 13 3
191	Office Supplies and Stationery	304 0 7
26	Travelling Expenses	56 5 4
1,191	General Expenses, Postage, Telephone and National Insurance	1,326 19 3
360	Divisional Expenses	410 0 0
	£ £ s. d.	
	1,569* Printing *Smokeless Air* and *Year Book* 2,116 2 6	
	865 *Less*—Receipts from Advertisements 1,233 3 6	
704		882 19 0
402	Printing and Publishing Booklets, etc.	224 17 8
205	Staff Pension Scheme	238 6 8
103	Office Equipment	435 8 6
1,619	Excess of Income over Expenditure	225 2 5
	* *Does not include Year Book*	
£9,380		£9,626 16 5

Balance Sheet, June 30th, 1956

£		£ s. d.	£ s. d.
	SURPLUS ACCOUNT		
5,497	Balance as at June 30th, 1955	7,615 15 11	
500	*Add*—Legacy F. N. Weightman, dec'd. balance	227 18 3	
		7,843 14 2	
1,619	Excess of Income over Expenditure for year to date	225 2 5	
			8,068 16 7
	CONFERENCE 1956—SOUTHPORT		
	£		
317	Fees received in advance	480 18 0	
33	*Less* Printing	33 1 11	
284			447 16 1
£7,900			£8,516 12 8

£		£ s. d.	£ s. d.
	INVESTMENTS (at cost)		
	Commercial Union Assurance Co.—		
206	£25 Stock	205 11 0	
	British Transport.—		
279	£371 9s. 10d. 3% Guaranteed Stock 1978/88	279 5 11	
886	Post Office Savings Bank	907 13 0	
574	Manchester and Salford Savings Bank	590 5 0	
580	3½% Defence Bonds	580 0 0	
100	Social Service Supplies Ltd.—Loan	100 0 0	
	One 10/- Share	10 0	
			2,663 4 11
	Cash at Bank—Deposit Account	4,406 13 10	
5,275	Cash at Bank and in hand	1,178 2 5	
			5,584 16 3
—	Payments in advance		268 11 6
£7,900			£8,516 12 8

August 7th, 1956.

Audited and found correct,
ABBOT & SON, Chartered Accountants,
40 South King Street, Manchester, 2.

NATIONAL SMOKE ABATEMENT SOCIETY

Summary of Divisional Accounts

Division	*Year Ended*	*Commencing Balance*	*Grants*	*Other Income*	*Total*	*Expenditure*	*Closing Balance*
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Scotland	31.3.56	306 8 10	100 0 0	118 13 6*	525 2 4	203 13 10*	321 8 6
North West	31.3.56	128 9 3	65 0 0	2 0	193 11 3	48 9 8	145 1 7
North East	31.5.56	83 19 4	—	2 2 6	86 1 10	8 10 8	77 11 2
Yorkshire	30.6.56	17 13 10	40 0 0	—	57 13 10	34 13 9	23 0 1
West Midlands	30.6.56	32 14 7	60 0 0	—	92 14 7	57 4 6	35 10 1
East Midlands	31.3.56	2 11 8	45 0 0	—	47 11 8	29 14 3	17 17 5
South East	16.7.56	14 16 9	70 0 0	—	84 16 9	82 17 9	1 19 0
South Wales & Mon. ..	31.12.55	30 0 0	—	—	30 0 0	3 13 10	26 6 2
Total		616 14 3	380 0 0	120 18 0	1,117 12 3	468 18 3	648 14 0

NOTES

* Includes fees and expenses for Annual Conference and Firemen's Classes.

THE COVENANT SUBSCRIPTION SCHEME

Particulars of the scheme that enables you to increase, without extra cost, the benefit of your subscription to the Society. We invite you to consider it.

For the purpose of the scheme the Society is recognized as a "charity" by the Commissioners of Inland Revenue, and it may claim for its own use the amount of the income tax that has been paid on the subscriptions it receives, provided that the subscriber has signed an agreement to subscribe a stated sum annually for a period of at least seven years.

Thus, if a member agrees to subscribe £5 a year, this amount is considered as what remains after a larger gross sum has been taxed, and the Society is able to claim the difference. With income tax at 9s. in the £ the gross amount is £9 1s. 10d., and the Society thus receives £4 1s. 10d. from the Authorities. The benefit to the Society is thus nearly doubled at no further cost to the subscriber. A lower rate of tax would reduce the amount so recovered, but an increased benefit to the Society remains.

The only obligation into which the subscriber enters in order to assist the Society in this way is to covenant to continue the subscription for a minimum period of seven years, or during his life, whichever period should be shorter.

After the covenant has been signed the subscriber is not required to take any further action other than duly forwarding his annual subscription (or more conveniently paying it by Banker's Order) and signing an Inland Revenue certificate which will be sent to him each year by the Society to the effect that the subscription has in fact been paid and has been drawn from his "general fund of taxed income." The certificate will show the gross amount from which tax has been deducted, and the subscriber will be entitled to show such gross amount as a "charge" in his return of income for tax purposes. an advantage some will appreciate.

A specimen form of covenant is given below. Such a document may be prepared on plain paper by the subscriber, and, after being signed and witnessed, sent to the Society. If preferred, the Society will prepare and forward a document on receipt of the particulars required (*i.e.*, name in full, address in full, description or occupation, and the amount to be paid annually to the Society). The required stamping of the document will be attended to by the Society.

It will be noted that the gross amount concerned varies according to the rate of income tax, but that the sum that the subscriber pays direct to the Society does not alter. It is this sum that is stated in the covenant.

The specimen is in the form required by individuals, but corporate bodies will no doubt be able to modify it as may be required.

SPECIMEN OF COVENANT

I (name)..... *of*.....
(address)..... (description or occupation).....
HEREBY COVENANT with the National Smoke Abatement Society, of 30 *Grosvenor Place in the City of Westminster, that for a period of seven years from the first day of*....., 195....., *or during my life, whichever period shall be shorter, I will pay annually to the said Society such a sum as will after the deduction of income tax at the rate for the time being in force amount to the sum of*.....
(amount in words), *such sum to be paid from my general fund of taxed income.*

IN WITNESS whereof I have hereunto set my hand and seal this.....
day of..... 195.....

Signed, sealed and delivered by the said
..... *in the presence of*
Signature (witness) .....
Address .....
Occupation ..... } (Signature).....

SUBSCRIPTIONS AND DONATIONS

For the year ended 30th June, 1956

* Denotes Covenant Subscriber

Scottish Division

	£	s.	d.
Aberdeen Corporation	5	5	0
Airdrie Corporation	4	4	0
Ardrossan Corporation	3	3	0
Ayr County Council	5	0	0
Ayr Corporation	3	3	0
Barrhead Corporation	3	3	0
Clackmannan County Council	4	4	0
Clydebank Corporation	6	6	0
Coatbridge Corporation	4	4	0
Currie, T. S.		15	0
Davies, P. M.		15	0
Dumbarton Corporation	3	3	0
Dunbarton County Council	12	12	0
Dundee Corporation	12	12	0
Dunfermline Corporation	4	4	0
East Kilbride Development Corporation	7	7	0
Edinburgh Corporation	21	0	0
Edward, J.	1	1	0
Falconer, Mrs. J.		15	0
Falkirk Corporation	4	4	0
Gilchrist, J.		15	0
Glasgow Corporation	30	0	0
Glasgow Tree Lovers' Society	1	1	0
Glasgow Women Citizens' Association	1	1	0
Grangemouth Corporation	3	3	0
Grattidge, H. H.	1	0	0
Greenock Corporation	7	7	0
Hamilton Corporation	4	4	0
Hawick Corporation	3	3	0
Heriot-Watt College	1	1	0
Howden, James & Co., Ltd.	12	12	0
*Hughes, H. S.	1	1	0
Inverness County Council	5	5	0
Inverness Corporation	4	4	0
Irvine Corporation	3	3	0
Johnstone Corporation	3	3	0
Jones, Samuel & Co., Ltd.	2	2	0
Kilmarnock Corporation	4	4	0
Kilsyth Corporation	3	3	0
Kirkcaldy Corporation	5	5	0
Kirkintilloch Corporation	3	3	0
Lanark County Council	21	0	0
Loanhead Corporation	3	3	0
Loch, Mrs. M.		15	0
Mathison, H. V.	1	1	0
Motherwell & Wishaw Corporation	5	5	0
Musselburgh Corporation	3	3	0
Orr, J. M. R.	1	1	0
O'Sullivan, Mrs. B.		15	0
Paisley Corporation	7	7	0
Paton, T.(1955)		15	0
(1956)		15	0
Perth Corporation	4	4	0
Port Glasgow Corporation	2	2	0
Renfrew County Council	7	7	0
Renfrew Corporation	3	3	0
Ritchie, A. W.	1	0	0
Ritchie, G. B.		15	0
Rotherham, G. E.	1	1	0
Rothesay Corporation	3	3	0
Rutherglen Corporation	3	3	0
Scottish Council of Women Citizens' Associations	2	2	0
Scottish Gas Board	73	10	0
Scott Park, Dr. & Mrs. S. D.	1	1	0
Smith, Mrs. Brownhill	1	1	0
South of Scotland Electricity Board	50	0	0
Stirling County Council	15	15	0
Stirling Corporation	4	4	0
Taylor, W.	1	1	0
Waldie, J. & Sons Ltd.	1	1	0
West Lothian County Council	2	2	0
Wightman, Mrs. U. N.		15	0

Northern Ireland Division

	£	s.	d.
Belfast Corporation	5	5	0
Castlereagh R.D.C.	4	4	0
Lynas, K. H.	1	10	0
Ormeau Bakery Ltd.	7	7	0

North West Division

	£	s.	d.
Abram U.D.C.	3	3	0
Accrington Corporation	4	4	0
Acklam, R. B.		15	0
Affleck & Brown Ltd.	2	2	0
*Aitkenhead, Miss M.	1	0	0
Andrew, W. H.	1	0	0
Anonymous	20	0	0
Ashton Bros. & Co., Ltd.	2	2	0
Ashton-under-Lyne Corporation	5	5	0
Association of Scientific Workers	1	1	0
Atherton U.D.C.	3	3	0
Audenshaw U.D.C.	3	3	0
Bacup Corporation	3	3	0
Barrow-in-Furness Corporation	5	5	0
Baxendale & Co., Ltd.	2	2	0
Bayes, Cllr. Mrs. M.	3	3	0
*Beard, E.	2	2	0
Beattie, E. & F. Ltd.	1	1	0
Behrens, A.		10	0
Bibby, H. P.	2	0	0
Bibby, J. & Sons Ltd.	12	12	0
Birkenhead Corporation	2	2	0
Blackburn Corporation	12	12	0
Blackpool Corporation	12	12	0
Bock, Dr. J. H.		15	0
Bolton Corporation	12	12	0
Bootle Corporation	6	6	0
Bredbury & Romiley U.D.C.	3	3	0
Brierfield U.D.C.	3	3	0
British Insulated Callender's Cables Ltd.	7	7	0
Bulcock, K.	1	0	0
Burnley Corporation	7	7	0
Burnley R.D.C.	4	4	0
Bury Corporation	5	5	0
Buxton Corporation	3	3	0
Cass, H. V.	1	1	0
Central Electricity Authority—North West, Merseyside and North Wales Division	25	4	0
Chadderton U.D.C.	4	4	0
Cheadle & Gatley U.D.C.	4	4	0
Chennell, J.		10	6
Cheshire County Council	31	10	0
Church U.D.C.	3	3	0
Clitheroe Corporation	3	3	0
Colne Corporation (1955)	3	3	0
(1956)	3	3	0
Cooper, Miss I.	1	1	0
Coulthard, Dr. A. & Miss D.		10	0
Crewe Corporation	5	5	0
Crompton U.D.C.	3	3	0

	£	s.	d.
Crosby Corporation	5	5	0
Cumberland County Council	12	12	0
Darwen Corporation	4	4	0
Davies, D. E.		15	0
Denton U.D.C. (1955)	4	4	0
(1956)	4	4	0
Droylsden U.D.C.	4	4	0
Duguid, Mrs. S. N.	1	1	0
*Duguid, S. N.	3	3	0
Eccles Corporation	4	4	0
Edwards, Dr. M. D.		15	0
Ellesmere Port U.D.C.	4	4	0
Failsworth U.D.C.	3	3	0
Farnworth Corporation	4	4	0
Fildes, Mrs. A.		15	0
Fleetwood Corporation	4	4	0
*Forrester, R. E.	1	0	0
Foxcroft, Mrs. P. S.	1	0	0
Franklin, N. J.		15	0
Fulwood U.D.C.	3	3	0
Furness District Federation of Owner-Occupiers' Associations	2	2	0
*Gavaghan, Mrs. L. A.	1	1	0
Glossop Corporation	3	3	0
Golborne U.D.C.	3	3	0
Great Harwood U.D.C.	3	3	0
Griffel, Dr. W.		10	6
Griffiths, Miss E. M.	1	0	0
Hale U.D.C.	3	3	0
Hall, E. N.		15	0
Hall & Pickles Ltd.	12	12	0
Haydock U.D.C.	3	3	0
*Hayhurst, Mrs. H.	2	2	0
Hazel Grove & Bramhall U.D.C.	3	3	0
Heap, Cllr. W.		15	0
*Herbert, J. L.		15	0
Hetherington, H.	1	0	0
Heywood Corporation	4	4	0
Hindpool Owner-Occupiers' Association	2	2	0
Horwich U.D.C.	3	3	0
Hoylake U.D.C.	4	4	0
*Hughes, W. R.	1	1	0
Huyton-with-Roby U.D.C.	5	5	0
Hyde Corporation	4	4	0
Hyde, F.	1	1	0
Irlam U.D.C.	3	3	0
Jackson, C. L.	1	1	0
Jewsbury, S.		15	0
Johnston, S.		5	0
Kearsley U.D.C.	3	3	0
*Kennedy, W. B.		10	6
Kitchener, The Rt. Hon. The Earl	1	0	0
Lancashire County Council	52	10	0
Lancashire&District Coke Distributors Association	7	7	0
Lancaster Corporation	5	5	0
Lane, Mrs. W.	1	1	0
Langford, A. S.		10	6
*Lee, Sir Kenneth	1	0	0
Lees, Miss M.	1	1	0
Leigh Corporation	4	4	0
Leyland U.D.C.	3	3	0
Littleborough U.D.C.	3	3	0
Liverpool Corporation	31	10	0
Longdendale U.D.C.	3	3	0
Macclesfield Corporation	4	4	0
*Macnair, A. S.	1	0	0
Mains, H. D.	1	1	0
Manchester Corporation	42	0	0
Manchester & District Smoke Abatement Committee	12	12	0
Marple U.D.C.	3	3	0
Mather, L. E.	2	2	0
*Mather, W. L.	1	0	0
Mather & Platt Ltd.	50	0	0
McKellen, N.	1	1	0
MacWilliam, Dr. H. H.		15	0
Merseyside & North Wales Electricity Board	12	12	0
Metropolitan-Vickers Electrical Co., Ltd.	8	8	0
Middleton Corporation	4	4	0
Middlewich U.D.C.	3	3	0
Mitchell, L. A.	1	1	0
Morrison, Dr. J.	1	1	0
Nelson Corporation	4	4	0
Newton-le-Willows U.D.C.	3	3	0
No-Nail Boxes Ltd.	2	2	0
Northern Gas Board—			
Carlisle	1	11	6
Penrith		10	6
Workington	1	11	6
North Western Electricity Board	12	12	0
North Western Gas Board	105	0	0
Northwich U.D.C. (1955)	3	3	0
(1956)	3	3	0
Oldham Corporation	12	12	0
Ormskirk U.D.C.	3	3	0
Padiham U.D.C.	3	3	0
Pike, Miss I. M.		10	6
*Polding, W. W.		10	6
Pontefract Bros.	1	1	0
Preston Corporation	12	12	0
Preston R.D.C.	4	4	0
Radcliffe Corporation	4	4	0
Rawtenstall Corporation	4	4	0
Refuge Assurance Company	12	12	0
Reynolds, Miss M.		10	6
Rhyl U.D.C.	3	3	0
Richardson, H. A.		15	0
Rishton U.D.C.	2	2	0
Roberts, Mrs. J. M.		15	0
*Robinson, Alderman Dr. J.	1	1	0
Rochdale Corporation	7	7	0
Royton U.D.C.	3	3	0
St. Helens Corporation	13	13	0
Sale Corporation	4	4	0
Salford Corporation	12	12	0
Sandbach U.D.C.	3	3	0
Sandbach, Miss E. A.		10	0
*Scott, Mrs. A. O.	1	0	0
Shamash, E.	4	0	0
Sharp, R.		15	0
Shaw, Mrs. M.		15	0
*Shaw, R. D.		15	6
Simon of Wythenshawe, Lord	2	2	0
Simon-Carves Ltd.	100	0	0
Simpson & Godlee Ltd.	7	7	0
*Smith, H.	2	2	0
Southport Corporation	1	1	0
Stalybridge Corporation	3	3	0
Stockport Corporation	12	12	0
Stretford Corporation	5	5	0
Summers, J. & Sons Ltd.	12	12	0
Swale, W. E.		15	0
Swinton & Pendlebury Corporation	4	4	0
*Taylor, H. F.		12	6
Taylor, H. N.		15	0
Taylor, Miss M. R.	1	0	0
Thornton Cleveleys U.D.C.	2	2	0
*Thorpe, J. A.		10	6
Tillotsons Newspapers Ltd.	7	7	0
Urmston U.D.C.	4	4	0
*Vanstone, H. B.	1	1	0
Wallasey Corporation	12	12	0
Walton-le-Dale U.D.C.	3	3	0
Warrington Corporation	7	7	0
Warrington R.D.C.	2	2	0
*Wells, Dr. Nesta H.		5	0
Westminster Dredging Co., Ltd.	2	2	0
*West's Gas Improvement Co., Ltd.	28	11	5
Whiston R.D.C.	1	1	0
Widnes Corporation	4	4	0
Wigan Corporation	8	8	0
Williamson, J. G.		15	0
*Wood, F. J.		15	0
Workington Corporation	4	4	0
Worsley U.D.C.	4	4	0
Wrexham Corporation	5	5	0
Wrexham R.D.C.	5	5	0

North-East Division

*Angus, Col. E. G.	3	3	0
Ashington U.D.C.	4	14	6

	£	s.	d.
Atkinson, E.		15	0
Atkinson, H.		15	0
Barnard Castle R.D.C.	3	3	0
Bedlingtonshire U.D.C.	4	4	0
Billingham U.D.C.	3	3	0
Bishop Auckland U.D.C.	4	4	0
Blaydon U.D.C.	4	4	0
Brandon & Byshottles U.D.C.	3	3	0
Castle Ward R.D.C.	3	3	0
Cellan-Jones, G.	2	2	0
Central Electricity Authority—North Eastern Division	12	12	0
Chester-le-Street R.D.C.	4	4	0
Chester-le-Street U.D.C.	3	3	0
Consett Iron Co. Ltd.	5	5	0
Consett U.D.C.	4	4	0
Crook & Willington U.D.C.	4	4	0
Darlington Corporation	7	7	0
Dixon, W.	1	0	0
Dorman, Long & Co., Ltd.	7	7	0
Durham R.D.C.	4	4	0
Eston U.D.C.	4	4	0
Falconer, G.		15	0
Felling U.D.C.	4	4	0
Fletcher, D. R.		15	0
*Gandy, Mr. and Mrs. H.	1	10	0
Gateshead Corporation	12	12	0
Gosforth U.D.C.	3	3	0
Green, Miss E.		15	0
Hartlepool Corporation	3	3	0
Hetton U.D.C.	3	3	0
Houghton-le-Spring U.D.C.	4	4	0
Imperial Chemical Industries Ltd. (Billingham Division)	12	12	0
*Isaac, P. C. G.	1	1	0
Jarrow Corporation	4	4	0
Lanchester R.D.C.	3	3	0
Longbenton U.D.C. (1955)	4	4	0
(1956)	4	4	0
Middlesbrough Corporation	12	12	0
Newburn U.D.C.	3	3	0
Newcastle upon Tyne Corporation	21	0	0
Nicol, W. T.		15	0
North Eastern Electricity Board	12	12	0
Northern Gas Board—			
Blyth	1	1	0
Darlington	3	3	0
Hexham		10	6
Middlesbrough	4	4	0
Newcastle upon Tyne	21	0	0
Stockton-on-Tees	4	4	0
Sunderland	4	4	0
Northumberland County Council	18	18	0
*Palmer, F. E.	2	2	0
Power Gas Corporation	10	10	0
Prudhoe U.D.C.	3	3	0
Redcar Corporation	4	4	0
Ryton U.D.C.	3	3	0
Saltburn & Marske-by-the-Sea U.D.C.	3	3	0
Seaham U.D.C.	6	6	0
Sedgefield R.D.C.	4	4	0
Skelton & Brotton U.D.C.	3	3	0
South Shields Corporation	12	12	0
Stanley (Co. Durham) U.D.C.	5	5	0
Stockton-on-Tees Corporation	5	5	0
Sunderland Corporation	12	12	0
Thornaby-on-Tees Corporation	3	3	0
Tweddle, T. A.		15	0
University of Durham—King's College	2	2	0
Wallsend Corporation	5	5	0
Washington U.D.C.	3	3	0
West Hartlepool Corporation	6	6	0
Whickham U.D.C.	3	3	0

Yorkshire Division

Adwick-le-Street U.D.C.	3	3	0
Aireborough U.D.C.	4	4	0
Ambler, T. & Sons	1	1	0
Atkinson, C. A. P.		15	0
*Bacon, N. P.	1	1	0
Batley Corporation	4	4	0
Beaumont, J. W.	1	1	0
Bentley-with-Arksey U.D.C.	3	3	0
Bingley U.D.C.	3	3	0
Boyd, Miss A. D.	1	1	0
Bradford Corporation	21	0	0
Bradford Civic Society	3	3	0
Bray, George & Co.	12	12	0
Bridlington Corporation	3	3	0
Brighouse Corporation	4	4	0
Brooks Young, P.	1	1	0
*Brown, G. L.	2	2	0
Carpenter, V. A.		10	6
Castleford U.D.C.	4	4	0
Central Electricity Authority—Yorkshire Division	12	12	0
Clayton, Son & Co., Ltd.	2	2	0
Clegg, E.		15	0
Coke Oven Managers' Association	5	5	0
Colne Valley U.D.C.	3	3	0
Conisbrough U.D.C.	3	3	0
Cowper Johnson, W. E.		15	0
Darton U.D.C.	3	3	0
Dearne U.D.C.	3	3	0
Denby Dale U.D.C.	3	3	0
Dewsbury Corporation	5	5	0
Dickinson, Miss Winifred		15	0
Dodworth U.D.C.	3	3	0
Doncaster Civic Trust (1955)	2	0	0
(1956)	2	0	0
Doncaster Corporation	7	7	0
Doncaster R.D.C.	5	5	0
English Steel Corporation Ltd.	7	7	0
Goodfellow, J. (1955)		15	0
(1956)		15	0
Graucob, F. Ltd.	6	6	0
Green, E. & Son Ltd.	100	0	0
Halifax Corporation	7	7	0
Hall, J. A.		15	0
Harper, Dr. R.	1	1	0
Harrogate Corporation	5	5	0
Hemsworth R.D.C.	5	0	0
Hemsworth U.D.C.	3	3	0
Hepton R.D.C.	3	3	0
Holdsworth, R. Y.	1	0	0
Holmes, W. C. & Co., Ltd.	12	12	0
*Holmes, W. G.	2	10	0
Holmfirth U.D.C.	3	3	0
Horbury U.D.C.	3	3	0
Horsforth U.D.C.	3	3	0
Huddersfield Corporation	12	12	0
Hull Corporation	18	18	0
Hunter, K. D.	1	1	0
Jervis, Dr. J. Johnstone	1	1	0
Keighley Corporation	2	2	0
Law, J.	1	1	0
Leeds Corporation	31	10	0
Lister, Henry & Sons Ltd.	2	2	0
Lomas, Mrs. B.		15	0
*Marshall, G. C.	1	10	0
Meltham U.D.C.	3	3	0
Mexborough U.D.C.	3	3	0
Middlebrook, C. J.		15	0
Mirfield U.D.C.	3	3	0
Morley Corporation	4	4	0
Nagelschmidt, Dr. G.	1	0	0
North Eastern Gas Board	42	0	0
North Riding of Yorkshire County Council	18	18	0
Ossett Corporation	3	3	0
Otley U.D.C.	3	3	0
Park Gate Iron & Steel Co., Ltd.	12	12	0
Pontefract Corporation	3	3	0
Pudsey Corporation	5	0	0
Queensbury & Shelf U.D.C.	3	3	0
Rawmarsh U.D.C.	3	3	0
Rosie, Miss J. I.		15	0
Rothwell U.D.C.	3	3	0
Rowsell, Mrs. B.		15	0
Royston U.D.C.	3	3	0
Rushton, J. L. (1955)	1	1	0
(1956)	1	1	0
Scarborough Corporation	2	2	0

	£	s.	d.
Schofield, W. B. (1955)	1	1	0
(1956)	1	1	0
*Severs, J. S.	2	0	0
Sheffield, Rotherham & District Smoke Abatement Committee	31	10	0
Shipley U.D.C.	4	4	0
Skinningrove Iron Co., Ltd.	10	0	0
Spenborough Corporation	4	4	0
Stanley (Yorks.) U.D.C.	3	3	0
Steam Storage Co., Ltd.	1	1	0
Stocksbridge U.D.C.	3	3	0
Swinton U.D.C.(1955)	3	3	0
(1956)	3	3	0
United Steel Companies Ltd.	50	0	0
Wakefield Corporation	6	6	0
Wakefield R.D.C.	3	3	0
Ward, A.		15	0
Warwick, H.	1	1	0
Wath-upon-Dearne U.D.C. (1955)	3	3	0
(1956)	3	3	0
West Riding of Yorkshire Regional Smoke Abatement Committee	3	3	0
Wombwell U.D.C.	3	3	0
*Wood, F. T.	1	1	0
Worsborough U.D.C.	3	3	0
Wortley R.D.C.	4	4	0
York Corporation	5	5	0
Yorkshire Electricity Board	12	12	0

West Midlands Division

Best, J. K.		15	0
Bilston Corporation	5	5	0
Birmingham Corporation	31	10	0
Brierly Hill U.D.C.	5	5	0
British Reinforced Concrete Engineering Co., Ltd.	50	0	0
Brownhills U.D.C.	3	3	0
Burton-upon-Trent Corporation	4	4	0
Cannock U.D.C.	4	4	0
Central Electricity Authority—			
Midlands Division	12	12	0
Coventry Corporation	18	18	0
Danks, Edwin & Co. (Oldbury) Ltd.	12	12	0
Darlaston U.D.C.	3	3	0
Dickinson, S.		15	0
Dudley Corporation	5	5	0
Garner, N. A.	1	0	0
Gibbons Brothers Ltd.	50	0	0
Gillett, Mr. and Mrs. J. A.	2	2	0
Grimmett, P. H. G.		10	6
Guest, Keen & Nettlefolds Ltd.	50	0	0
G.W.B. Furnaces Ltd.	12	12	0
Halesowen Corporation	4	4	0
Hall, G. R.		15	0
Harris & Co. Ltd.	1	11	6
Hayes, Mrs. A. L.		15	0
Kay, W. L.		15	0
Kidderminster Corporation	4	4	0
Leamington Spa Corporation	4	4	0
Manger's Salt Works Ltd.	1	1	0
Meriden R.D.C	4	4	0
Midlands Electricity Board	12	12	0
Midlands Joint Advisory Council for Smoke Abatement	10	10	0
Moore, J.		15	0
Newcastle-under-Lyme Corporation	5	5	0
Nuneaton Corporation	5	5	0
Oldbury Corporation	5	5	0
Pointon, F. T., Jnr.	1	0	0
*Pringle, Dr. E.		15	0
*Pringle, Dr. J. E.	1	1	0
Rowley Regis Corporation	5	5	0
Rugby Corporation	4	4	0
Rugeley U.D.C.	3	3	0
Shorrock Superchargers Ltd.	7	7	0
Smart, R. Cecil (1955)		10	6
(1956)		10	6
Smethwick Corporation	7	7	0
Stafford Corporation (1955)	2	14	0
(1956)	4	4	0
Staffordshire County Council	12	12	0
Stoke-on-Trent Corporation	18	18	0
Stone R.D.C.	3	3	0
Sutton Coldfield Corporation	4	4	0
Taylor, Mr. and Mrs. C. B.	2	2	0
Thomas, Dr. G. J.	1	0	0
Tipton Corporation (1955)	4	4	0
(1956)	4	4	0
Turner, Miss H. E.	2	0	0
Wall, John M., Ltd.	1	1	0
Walsall Corporation	12	12	0
Warwickshire County Council	18	18	0
Wednesbury Corporation	4	4	0
Wednesfield U.D.C.	3	3	0
Wellington (Salop) U.D.C.	3	3	0
West Bromwich Corporation	7	7	0
West Midlands Gas Board	105	0	0
Willenhall U.D.C.	5	5	0
Wolverhampton Corporation	12	12	0
Wright, J.	1	10	0

East Midlands Division

Alfreton U.D.C.	3	3	0
Ballard, W. A.	1	0	0
*Barash, Dr. M.	1	1	0
Basford R.D.C.	4	4	0
Beeston & Stapleford U.D.C.	4	4	0
Belper U.D.C.	3	3	0
Blackwell R.D.C.	4	4	0
Bolsover U.D.C.	3	3	0
Boneham & Turner Ltd.	1	1	0
Boston Corporation	3	3	0
*Brown, J. A.	1	1	0
Cambridge Corporation	1	1	0
Central Electricity Authority—			
East Midlands Division	12	12	0
Chesterfield Corporation	5	5	0
Chesterfield R.D.C.	7	7	0
Clay Cross U.D.C.	3	3	0
Clowne R.D.C.	3	3	0
Coalville U.D.C.	4	4	0
Corby U.D.C. (1955)	3	3	0
(1956)	3	3	0
Dearden, J.		15	0
Derby Corporation	12	12	0
Derbyshire County Council	12	12	0
Dronfield U.D.C.	2	2	0
Eales, C. D.		15	0
Eastern Electricity Board	12	12	0
East Midlands Electricity Board	12	12	0
East Midlands Gas Board	73	10	0
Eastwood U.D.C.	3	3	0
Gainsborough U.D.C.	3	3	0
Great Yarmouth Corporation	5	5	0
Grimsby Corporation	7	7	0
Gurney, J.	2	2	0
Heanor U.D.C.	4	4	0
Hinckley U.D.C.	4	4	0
Hucknall .UD.C.	3	3	0
Ilkeston Corporation	4	4	0
Ipswich Corporation	12	12	0
Irthlingborough U.D.C.	3	3	0
Kettering Corporation	4	4	0
King's Lynn Corporation	4	4	0
Kirkby in Ashfield U.D.C.	3	3	0
Leicester Corporation	18	18	0
Lewis, Mrs. A. B.	1	0	0
Lincoln Corporation	7	7	0
Long Eaton U.D.C.	4	4	0
Loughborough Corporation	4	4	0
Lowestoft Corporation	4	4	0
Low Temperature Coal Distillers' Association	7	7	0
Mansfield Corporation	5	5	0
Mansfield Woodhouse U.D.C.	4	0	0
Market Harborough U.D.C.	3	3	0
McDonald, J. D.		15	0
McHugh, F. G.		15	0
Newark Corporation	3	3	0
Northamptonshire County Council	18	18	0

	£	s.	d.
Nottingham Corporation	30	0	0
Nottinghamshire County Council	10	10	0
Old Fletton U.D.C.	5	5	0
Orr, J. H.		15	0
Peterborough Corporation	5	5	0
Ripley U.D.C.	3	3	0
Royall, F. A.	1	0	0
Rushden U.D.C. (1955)	3	3	0
(1956)	3	3	0
Scopes, F. V. (1955)	1	1	0
(1956)	1	1	0
Scunthorpe Corporation	5	5	0
Smith, F. V. S.	1	1	0
Southwell R.D.C.	4	4	0
Staveley U.D.C.	3	3	0
Stewarts & Lloyds Ltd.	50	0	0
Sutton-in-Ashfield U.D.C.	4	4	0
Swadlincote U.D.C.	3	3	0
*Turner, T. H.	1	0	0
Twinn, B.	1	1	0
West Bridgford U.D.C.	3	3	0
Wigston U.D.C.	3	3	0
Woodcock, F. Huntly	1	5	0
Worksop Corporation	4	4	0
Worksop R.D.C.	3	3	0

South-West Division

Blampied F.C.		15	0
*Bradshaw, Miss G.		5	0
Bristol Corporation	18	18	0
Bristol and West Clean Air Committee	4	4	0
Burdes, Mrs. L.		15	0
Buzzacott, J. O.	2	2	0
*Campbell, Dr. A. F.	1	1	0
Cawley, The Lady (1955)	1	0	0
(1956)	1	0	0
Central Electricity Authority—South Western Division	12	12	0
Cheltenham Corporation	5	5	0
Clarke, J. A.	1	5	0
Crook, S. C.	1	1	0
Fry, Miss A.		15	0
Gloucester Corporation	5	5	0
Ilfracombe U.D.C.	3	3	0
Imperial Tobacco Company (of G.B. & Ireland) Ltd.	12	12	0
Kingswood U.D.C.	3	3	0
Poole Corporation	2	2	0
Portishead U.D.C.	3	3	0
*Rogers, P.	2	2	0
Seale, Mrs. I. L.		15	0
Shaftesbury, Lady	1	10	6
Sodbury R.D.C.	4	4	0
South Western Electricity Board	12	12	0
South Western Gas Board	36	15	0
Swindon Corporation	5	5	0
Templeman, Mrs. G.		15	0
Thornbury R.D.C.	4	4	0
Trevillion, Mrs. F.		15	0
Trowbridge U.D.C.	3	3	0
Weston-super-Mare Corporation	2	2	0
Women's Gas Federation		10	0

South-East Division

Acton Corporation	6	6	0
Acworth, A. W.	1	0	0
Acworth, Miss E. A.	1	1	0
Acworth, Miss W. B.	5	5	0
Airedale, The Rt. Hon. Lord	1	1	0
*Alston, Dr. J. M.	1	1	0
Andover Corporation	2	2	0
Ascot Gas Water Heaters Ltd. (1955)	12	12	0
(1956)	12	12	0
Associated Coal & Wharf Companies Ltd	7	7	0
Associated Lead Manufacturers Ltd.	8	8	0
Atkinson, Mrs. M.	1	0	0
Ault, H.	1	1	0
Aylesbury Corporation	3	3	0
Bacon, A.	1	0	0
Barber, S. S.		15	0
Barking Corporation	10	10	0
Barnes Corporation	4	4	0
Basildon U.D.C.	4	4	0
Battersea Corporation	12	12	0
Beard, J. R.	1	1	0
Bedfordshire County Council	21	0	0
Bennett, M. J.	1	10	0
Bermondsey Corporation	5	5	0
Bexley Corporation	7	7	0
Binderman, Mrs. A.		6	0
Bishop, W. D.	1	1	0
Bligh, Mrs. M. F.	1	1	0
*Bond, Miss E. F.		15	0
Boult, Miss O.	2	2	0
Bournemouth Corporation	2	2	0
*Boyd, Miss D.		15	0
Brentford & Chiswick Corporation	5	5	0
Brighton Corporation	12	12	0
British Electrical Development Association	125	0	0
British Iron & Steel Federation	105	0	0
British Medical Association	12	12	0
British Transport Commission	150	0	0
Bromley Corporation	5	5	0
Browne, Dr. D. Warren	1	1	0
Buist, Commander C.	10	10	0
Burke, Dr. S. A.	1	11	6
Butchard, G.	2	0	0
Cable Makers' Association	12	12	0
Caller, Dr. S.		10	6
Camberwell Corporation	12	12	0
Card, H. T.		15	0
Carshalton U.D.C.	5	5	0
Central Electricity Authority	647	12	0
,, Eastern Division	12	12	0
,, London Division	12	12	0
,, South-Eastern Division	12	12	0
,, Southern Division	12	12	0
Chalk Farm Tenants' and Residents' Association	1	1	0
*Chantler, P.	3	3	0
Charrington, Gardner, Lockett & Co., Ltd.	7	7	0
Chatfield, A. J.		15	0
Chatham Corporation	4	4	0
Chelsea Corporation	5	5	0
Cheshunt U.D.C.	3	3	0
Chigwell U.D.C.	5	5	0
Chislehurst & Sidcup U.D.C.	7	7	0
Chitson, Miss M.		15	0
*Chivers, D. P.		10	0
Clacton U.D.C.	3	3	0
Clark, J. K.		15	0
Clarke, Dr. R. T. V.	1	10	0
*Clinch, H. G.	1	1	0
Coal Utilisation Council	15	15	0
Coulsdon & Purley U.D.C.	1	1	0
Crayford U.D.C.	4	4	0
Croydon Corporation	4	4	0
Dagenham Corporation	3	3	0
Dartford Corporation	4	4	0
Dartford R.D.C.	4	4	0
Darwen, J.	1	1	0
Davis, E. T. A.	1	1	0
Deptford Corporation	7	7	0
Dover Corporation	4	4	0
Duncalfe, Sir Roger	2	2	0
Dunstable Corporation	3	3	0
Ealing Corporation	2	2	0
*East, R. G.	1	0	0
Eastern Gas Board	42	0	0
East Ham Corporation	12	12	0
Eastleigh Corporation	4	4	0
*Eaton, Dr. F. J.	2	0	0
Edmonton Corporation	12	12	0
Edwards, Dr. C.		15	0
*Edwards, The Rt. Hon, John	1	0	0
Electrical Association for Women	12	12	0
Elstree R.D.C.	3	3	0

	£	s.	d.
*Elsworthy, J. G.	1	11	6
Epping & Ongar R.D.C.	3	3	0
Erith Corporation	4	4	0
Esso Petroleum Co., Ltd.	100	0	0
Evans, D. H. & Co., Ltd.	7	7	0
Farnborough U.D.C.	4	4	0
Feaver, R. J.		15	0
Federation of British Cremation Authorities	2	2	0
Feltham U.D.C.	4	4	0
Finchley Corporation	5	5	0
Finsbury Corporation	5	5	0
Fog Dispersal Research Unit	12	12	0
Ford Motor Co., Ltd.	12	12	0
*Foss, Mrs. A.		10	6
Fox, J.	1	1	0
Fox, Dr. R. H.		15	0
Franklin, C., Ltd.	2	2	0
Friern Barnet U.D.C.	4	4	0
Fry, Miss A. R.	1	0	0
Fry, Miss M.	1	14	9
Fulham Corporation	15	15	0
*Gamlen, R. E.	1	11	6
*Gandy, Miss R. L.	1	1	0
Gardiner, P. C.	1	1	0
Gas Council	250	0	0
General Electric Co., Ltd.	12	12	0
*Gillison, Dr. J. A.	1	1	0
Glover & Main Ltd.	50	0	0
Goodchild, C. R.		15	0
Goodeve, Sir C. F.	2	2	0
Gosport Corporation	1	1	0
Grace, Mrs. E.		15	0
Gravesend Corporation	4	4	0
Greenwood, T. A. S.		15	0
Gresham House Estate Co., Ltd.	7	7	0
Guildford Corporation	4	4	0
Guinness, A. Son & Co. (Park Royal) Ltd.	25	0	0
Gummer, R. H.	1	1	0
Gunstone, Mrs. S. T.		15	0
Hackney Corporation	12	12	0
Hales, J. S.	2	2	0
*Hall, C. A.	1	5	0
Halsted, V.	1	1	0
Hammersmith Corporation	12	12	0
*Hampson, G. B.		10	6
Harrold Leather Manufacturing Co., Ltd.	1	1	0
Harrow Corporation	12	12	0
Hastings Corporation	5	5	0
Havant & Waterloo U.D.C.	4	4	0
Hemel Hempstead Corporation	4	4	0
Henfrey-Smith, F. C.		15	0
Heston & Isleworth Corporation	7	7	0
High Wycombe Corporation	4	4	0
Hitchin U.D.C.	3	3	0
Hoddesdon U.D.C.	3	3	0
Hodgkinson, J. (Salford) Ltd.	7	7	0
Holborn Corporation	3	3	0
Holiday Fellowship Ltd.	2	2	0
Holmes, J. P.	1	1	0
Honeywell-Brown Ltd.	7	7	0
Hopthrow, H. E.	1	1	0
Hornchurch U.D.C.	12	12	0
Horsham U.D.C.	3	3	0
Hove Corporation	5	5	0
Hurseal Ltd.	7	7	0
*Hutton, Dr. K. B.	1	0	0
Hyland, A.	1	0	0
Ideal Boilers & Radiators Ltd.	7	7	0
Ilford Corporation	12	12	0
Institute of Fuel	15	15	0
Institution of Electrical Engineers	12	12	0
Institution of Hospital Engineers	12	12	0
International Combustion Ltd.	250	0	0
James, B. W.		10	0
Johnson, K. R.	1	0	0
Judd, Budd Ltd.	7	7	0
Kensington Corporation	3	3	0
*Kettlewell, H. M.	1	1	0
Kingston-upon-Thames Corporation	4	4	0
Lambeth Corporation	12	12	0
Lea, C.	1	1	0
*Lee, S. A.	1	0	0
*Lessing, Dr. R.	1	1	0
Leveson Gower, Miss V.		10	0
Lewisham Corporation	5	5	0
Leyton Corporation	3	3	0
Lister, B. S.	2	0	0
Littlehampton U.D.C.	1	11	6
London (City), Corporation of	26	5	0
London County Council (1955)	31	10	0
(1956)	31	10	0
London Electricity Board	12	12	0
London & Home Counties Smoke Abatement Advisory Council	4	4	0
London Trades Council	2	2	0
Luton Corporation	2	2	0
*McDougall, R. J. R.	2	2	0
*McGhie, A. T. S.		15	0
*McLachlan, T.		10	6
Malden & Coombe Corporation	3	3	0
Marshant, L. W. K.	2	0	0
Markham, Sir Frank	2	2	0
Mathias, Mrs. F. V. L.		15	0
Mathias, J.	1	0	0
Melland, B.	1	10	0
Merton & Morden U.D.C.	5	5	0
Mitcham Corporation	2	2	0
*Munro, Mrs. M. A.	1	1	0
Nabarro, G.	1	1	0
National Coal Board	500	0	0
New Forest R.D.C.	4	4	0
Nonhebel, G.	1	1	0
Northfleet U.D.C.	3	3	0
North Thames Gas Board	105	0	0
Orpington U.D.C.	5	5	0
Oxford Corporation	10	10	0
Oxford Preservation Trust	1	1	0
Paddington Corporation	5	5	0
Parker, H.	1	0	0
Parkinson, A. C. (1955)		15	0
(1956)		15	0
Parry, M.		15	0
Penge U.D.C.	4	4	0
Pollard, R. S. W.		15	0
Pollitzer, E.	3	3	0
Portsmouth Corporation	5	5	0
Procter, H. E.		10	0
Radiation Ltd.	262	12	0
Radiovisor Parent Ltd.	7	7	0
Rayner, E. T.	3	0	0
Reading Corporation	2	2	0
Reed, H. H.	1	1	0
Reigate Corporation	1	1	0
Rhondda, Lady		15	0
Richards, Mr. and Mrs. E.	1	0	0
Richards, Dr. H.		10	6
*Roberts, J. M.		15	0
*Robinson, Mrs. E.	2	2	0
Rochester Corporation	4	4	0
Romford Corporation	7	7	0
Roots, O. J.		15	0
Roper, R.		10	6
Royal Institute of British Architects	12	12	0
St. Marylebone Corporation	7	7	0
St. Pancras Corporation	5	5	0
Salmon, S. A.		15	0
Samuel, Viscount and Lady	1	1	0
Sanitary Inspectors' Association	12	12	0
Schofield, M. G. (1955)	1	1	0
(1956)	1	1	0
*Shanks, E. C.		15	0
Shaw Scott, G.	1	0	0
Shell-Mex & B.P. Ltd.	105	0	0
Shinnie, Dr. A. J.		15	0
Shoreditch Corporation	4	4	0
Simon, Professor Sir Francis	1	0	0
Simpson & Cook Ltd.	1	1	0
Shoreham-by-Sea U.D.C.	3	3	0
Sittingbourne & Milton U.D.C.	3	3	0
Slough Corporation	5	5	0
Smith, Sir Ernest	2	2	0
Smith & Wellstood Ltd.	1	1	0
Society of British Gas Industries Ltd.	100	0	0

	£	s.	d.
Solid Smokeless Fuels Federation	52	10	0
Southall Corporation	5	5	0
Southampton Corporation	1	1	0
South Eastern Electricity Board	12	12	0
South Eastern Gas Board	105	0	0
Southend-on-Sea Corporation	2	2	0
Southern Electricity Board	12	12	0
Southern Gas Board	36	15	0
Southgate Corporation	2	2	0
Southwark Corporation	7	7	0
Southwick U.D.C.	3	3	0
Staines U.D.C.	4	4	0
Stansfield, A. F.	1	1	0
Stepney Corporation	7	7	0
Stevenage U.D.C.	3	3	0
Stoddard, Dr. A.	2	0	0
Stoke Newington Corporation	4	4	0
Sturtevant Engineering Co., Ltd.	2	2	0
Sugg, W. & Co., Ltd.	2	2	0
Sutton & Cheam Corporation	7	7	0
Swift, S.	1	1	0
Taylor, C. P.		15	0
*Taylor, M. Lindsay	1	1	0
Thomson, Miss P.	1	1	0
Thurrock U.D.C.	7	7	0
Tiranti, A.		5	6
Tosic, J.		10	0
Tottenham Corporation	12	12	0
Trianco Ltd.	7	7	0
Turner, Dr. W. C.	1	0	0
Vaughan-Cowell, Lt.-Col. A.	1	1	0
Des Voeux, Mrs. M. A.	5	5	0
Waddall, A.		15	0
Walthamstow Corporation (1955)	12	12	0
(1956)	12	12	0
Wanstead & Woodford Corporation	5	5	0
Ward, Dr. F. A. B.	2	2	0
Watford Corporation	5	5	0
Watford R.D.C.	4	4	0
*Watkins, D. V.	1	0	0
Wembley Corporation	12	12	0
West Ham Corporation	1	1	0
Westminster City Council	21	0	0
White, Dr. H. D. J.	1	0	0
Wicksteed, J. H.		10	0
Wilkinson, J. R.		15	0
Willesden Corporation	12	12	0
Williams, E. V. H.	1	1	0
Wimbledon Corporation	5	5	0
Windsor Corporation	2	2	0
Windsor R.D.C.	3	3	0
Winkworth, Mrs. D. M.		5	0
Women's Advisory Council on Solid Fuel	7	7	0
Women's Gas Federation	12	12	0
Woodall-Duckham Construction Co., Ltd.	250	0	0
Wood Green Corporation(1955)	2	2	0
(1956)	2	2	0
Woolwich Corporation (1955)	12	12	0
(1956)	12	12	0
Yiewsley & West Drayton U.D.C.	3	3	0
Young, M.		15	0

South Wales and Monmouthshire Division

Abercarn U.D.C.	3	3	0
Aberdare U.D.C.	4	4	0
Abertillery U.D.C. (1955)	4	4	0
(1956)	4	4	0
Barry Corporation	4	4	0
Bedwas & Machen U.D.C.	3	3	0
Bedwellty U.D.C. (1955)	4	4	0
(1956)	4	4	0
Bridgend U.D.C.	3	3	0
Caerphilly U.D.C.	4	4	0
Cardiff Corporation	12	12	0
Cardiff R.D.C.	4	4	0
Central Electricity Authority— South Wales Division	12	12	0
Cwmbran U.D.C.	3	3	0
Gellygaer U.D.C.	4	4	0
Glamorgan County Council (2)	63	0	0
Gylee, Mrs. M.		15	0
Llanelly Corporation	4	4	0
Llanelly R.D.C.	4	4	0
Llantrisant & Llantwit Fadre R.D.C.	4	4	0
Mountain Ash U.D.C.	4	4	0
Mynyddislwyn U.D.C.	3	3	0
Neath Corporation	4	4	0
Newport Corporation	12	12	0
Pedler, T. W.	1	1	0
Penarth U.D.C.	3	3	0
Pontardawe R.D.C.	4	4	0
Pontypool U.D.C.	4	4	0
Pontypridd U.D.C.	4	4	0
Port Talbot Corporation	4	4	0
Rhondda Corporation	12	12	0
Risca U.D.C.	3	3	0
Silburn, Mrs. E.	1	1	0
South Wales Electricity Board	12	12	0
Steel Company of Wales Ltd.	50	0	0
Swansea Corporation	12	12	0
Thomas, R. & Baldwins Ltd.	7	7	0
Tredegar U.D.C.	3	3	0
Wales Gas Board	21	0	0
Wales & Monmouthshire Industrial Estates Ltd.	7	7	0

Overseas Subscriptions

Elex, S. A. (Switzelrand)	3	0	0
Leichhardt Municipality (Australia)	5	5	0
Meddows, J. C. (Australia)	2	2	0
Mills, D. V. (Australia)		13	3
National Council of Women of South Africa (S. Africa)	2	2	0
Ottolenghi, A (Italy)		15	0
Reif, Dr. A. E.	1	1	0
Scott, Howard J. (U.S.A.)	1	0	4
Vereeniging Corporation (S. Africa) (1955)	1	1	0
(1956)	1	1	0
Vivian, J. H. & Co., Ltd. (S. Africa)	2	2	0
Wurts, T. C. (U.S.A.)	2	0	0
Subscriptions and donations under 5/-		5	0
	£8,859	11	9

The CLEAN AIR ACT

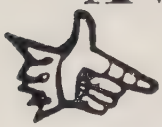
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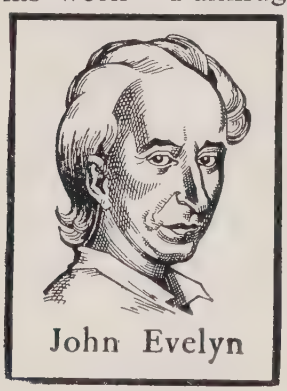
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John Evelyn

**First published in 1661 and reprinted by the National Smoke Abatement Society.*

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Anybody concerned with promoting the cause of smoke abatement is invited to take full advantage of the free facilities offered by the Association.

ELECTRICITY

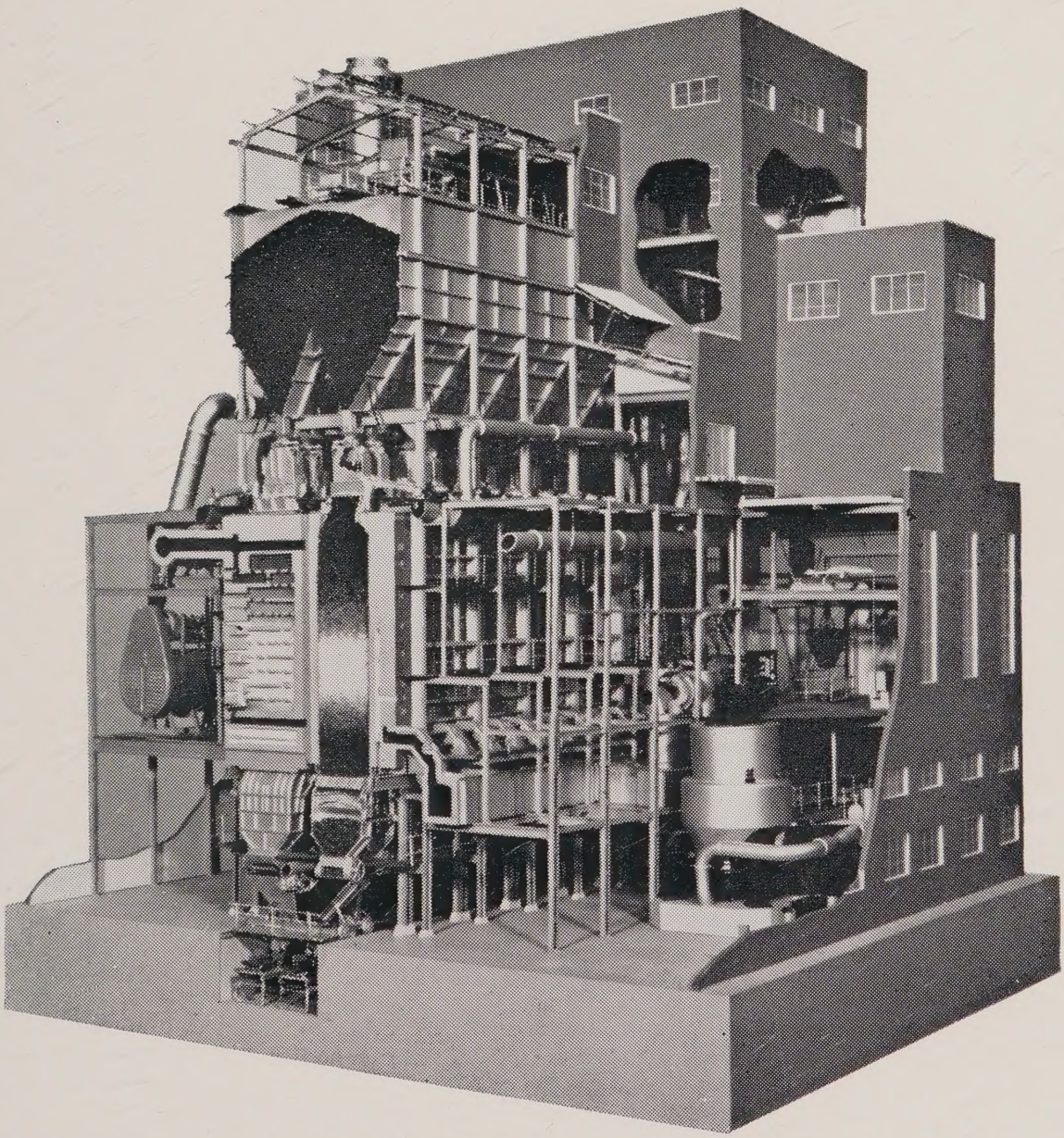
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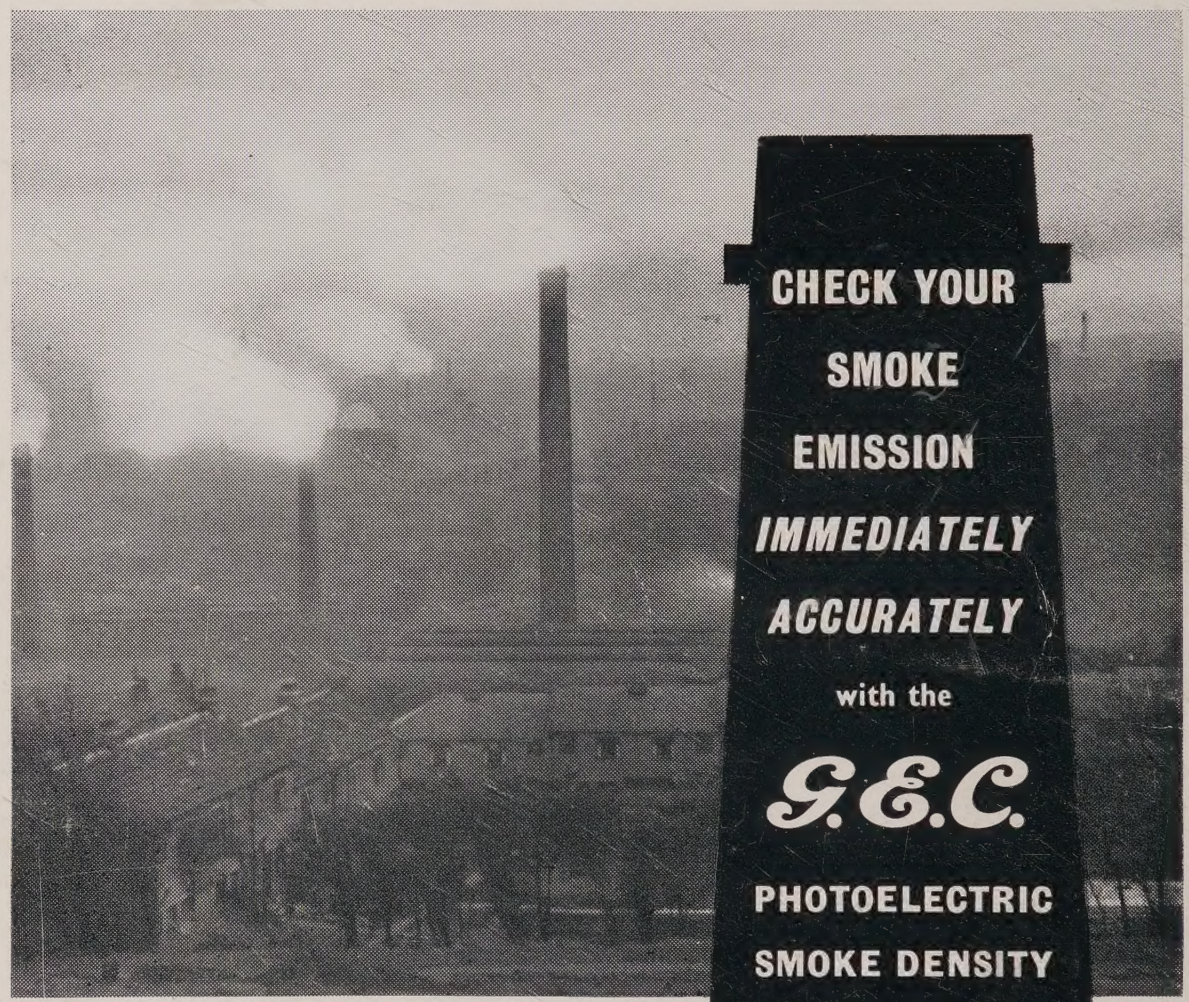
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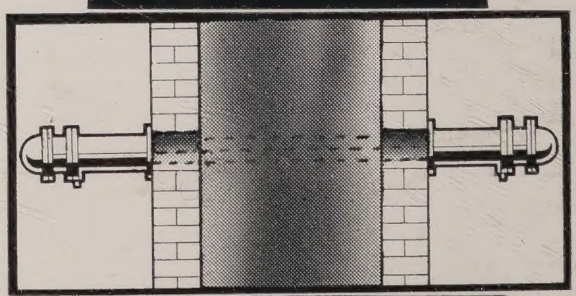
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